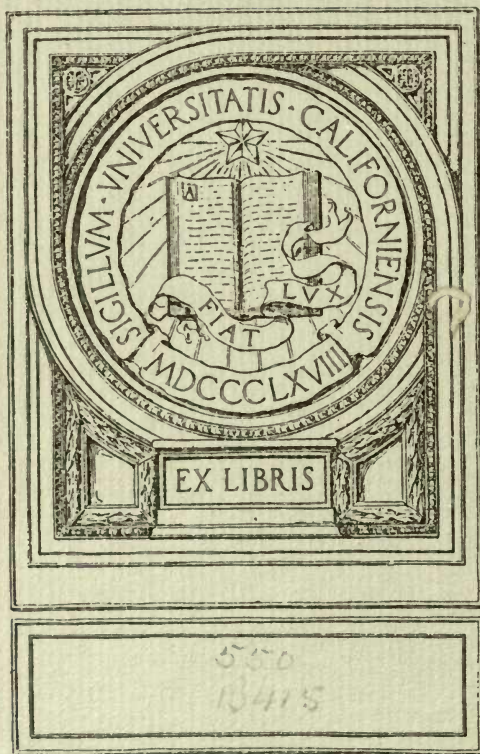


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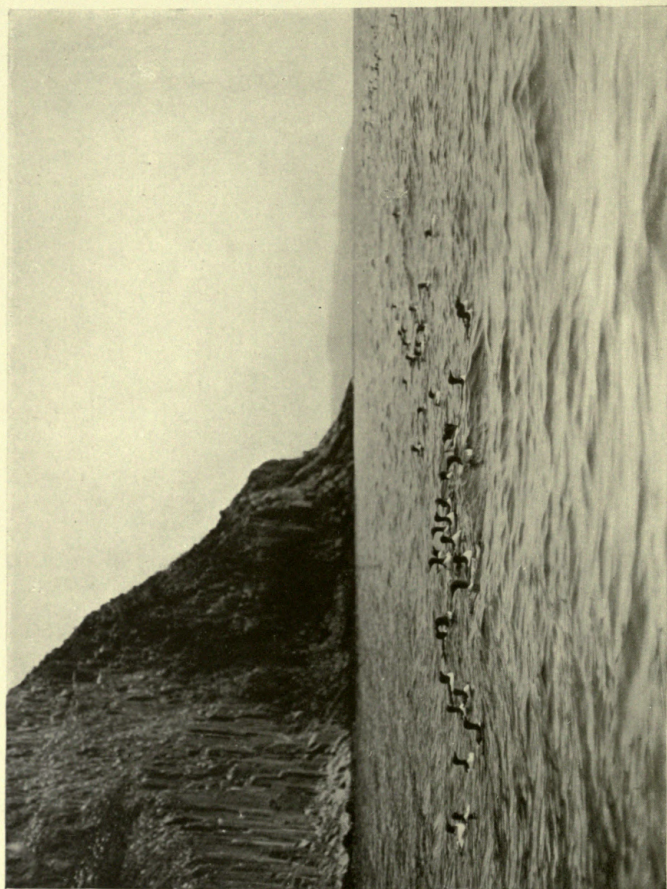
Vol 6352

PHOTOGRAPHY FOR BIRD-LOVERS.



THE UNIVERSITY OF CHICAGO

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California



GUILLEMOTS AT THE CLIFF-FOOT.

Frontispiece

TO VINU
ANROTHIAO

PHOTOGRAPHY

FOR

BIRD-LOVERS

A PRACTICAL GUIDE

BY

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AUTHOR OF

"THE HOME-LIFE OF THE SPOONBILL, THE STORK, AND SOME HERONS."

WITH PHOTOGRAPHIC PLATES

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CHAPTER I.

INTRODUCTORY.

THOUGH the task is hardly possible, it is often attempted to compare the sport with gun to that with camera ; their standpoints are too far apart to admit of direct comparison, yet we may consider some of the factors or impulses common to both. If we could analyse the different impulses which, taken together, produce the desire, common to men of all nations, to hunt and slay, not the least of these would be found to be the natural exhilaration produced by the exercise involved, the satisfaction at the mastery of some creature by the pitting of our powers against its, as well as the gratification of the desire possessed from infancy to obtain and examine any object beyond our reach—the natural curiosity of mankind.

Now, regarding the first of these—exercise—there appears to be spread about a wholly erroneous idea that bird-photography consists in lying still behind a bush. True, it may embrace little else, and yet be productive of most valuable results;

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but undoubtedly it can afford, in the nature of a day's rope work in the mighty cliffs, as strenuous exercise as any in the realm of sport.

As to the second—the satisfaction at the mastery of some wild creature—such mastery with gun is no sooner attained than ended, for life is gone and resistance ceases, whereas under the camera's ordnance the mastery may last almost indefinitely.

And lastly—the gratification of curiosity. The gunner, truly, may handle and consider a lifeless stiffening thing (which with a lack of reality may be done in a museum), but to examine at close-quarters the living creature which he stalks is not within his plan; such, however, is the very essence of bird-photography.

Thus considered, there is small cause for wonder at the ever-growing popularity of this camera work, especially in a country of such narrow confines as our own where the finer and freer forms of shooting are almost unattainable.

But it should be remembered that these comparisons are based on three common factors only; there are many others peculiar to each, an impartial consideration of which will demonstrate each sport to be excellent in its own sphere, each doing work the other leaves undone. We do not wish, therefore, to set these two branches of sport in arms against one another, far from it, but rather

to illustrate some merits of the one, the new, by comparison with those of the other, the old and time-honoured.

Bird-photography is not an old hobby served up in new guise: it is something entirely new, and only rendered possible by late advancements in the photographic art. As we shall see, it may primarily take one of two forms, but in itself it stands alone.

Before going on to consider methods, it should be realized that success in this work depends as much on the adaptability and resourcefulness of the operator as on the mere technique of photography. In fact, so diverse are the circumstances which arise that it would hardly be too much to say that each case is peculiar and stands alone, and although there are broad principles, the observance of which will greatly aid us in our work, yet rules and methods must be regarded as elastic to a high degree, the most helpful advice being of a suggestive rather than a fixed and dictatorial character.

Perhaps the greatest asset for this work is a knowledge of field-craft, either natural and almost instinctive, or acquired, but this in itself is not sufficient. After the subject has been found, and the difficulties of the site and of the bird's shyness overcome, there yet remains the vital part—the taking of the picture.

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Some Photographic Knowledge Required.

And now it will be well to consider the status of those for whom this book is primarily intended. It may be said at once that it is not destined to serve as a text-book of photography, but rather as a manual for the application of that art to a given purpose—that of bird-photography in its widest sense. This being so, it is taken for granted that the reader has at least mastered the rudiments of camera-craft, and can, with a fair degree of certainty, make a respectable negative of a simple subject; that he has, in short, struggled through the early technique of exposure, development, and printing. But should the mysteries of these processes still present difficulties, he is advised to consult one of the legion of hand-books specially devoted to these subjects, for these are purely photographic matters, and except in special form are quite outside the scope of this work.

There is a plain and, to the impatient, a rather ugly fact that must be faced, so we had better settle it at once.

To attempt bird—or any other such applied form of—photography before the general principles and practice of the art are mastered, is simply to retard progress and court failure. It is, in fact, trying to run before walking has been accomplished, and nowhere is this cart-before-the-horse method

more productive of disappointment than in bird-photography. But, lest the foregoing should have frightened any beginners, let me hasten to point out that the standard of photographic efficiency demanded is not high, but rather of the most elementary nature. In fact, the point at, or beyond which it is hoped the following pages may be taken up, is when an exposure having been made and the negative developed, any pronounced defects therein can be appreciated, and in such simple cases as over or under exposure or development, the cause of such defects rightly understood. Such a knowledge might easily be picked up in a week or ten days by anyone who gave his mind to careful work.

Scope.

Photography for bird-lovers is very much wider in its scope than at first appears probable, and emphatically does not confine itself to the portrayal of birds sitting on their nests. Broadly, it may be divided into three heads, each self-explanatory: (1) *The inanimate*, (2) *the living creature in captivity*, and (3) *the wild free bird*. In all three there is yet much original work to be done, especially, perhaps, in the first and last; and of these two, if we may further differentiate, perhaps the former is the less exploited. This is only natural: a lifeless egg or bone remains the same to-day, to-morrow, and a

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year hence, and does not seem to call for reproduction, whereas an active bird is ever fascinating, ceaselessly changing its appearance and expression. Work on the inanimate rather savours merely of the "ologies," and, therefore, at once appears forbidding to not a few, while bird-portraiture simply for enjoyment's sake requires no study, and is a growing hobby in itself.

It might be truly said that at the present time there are, though probably unconsciously, two "schools" at work. The one, the "bird-photographers," work purely for enjoyment's sake and through a natural love of the open air and all living things, and a delight at being brought into touch and sympathy with wild creatures in their natural haunts. These are, perhaps, the most to be envied, for their work is practically all pleasure, save for the little trials and disappointments necessarily incident to the sport, without which bird-photography would assuredly lose half its charm. It matters little to them whether it be *Corvus corone* or *Corvus cornix* that is about to settle on the nest so long as they secure a picture of a crow at home. They love the work more for its own sake than for the value of the result obtained.

The other, the "photo-ornithologists," work primarily, not as photographers, but as naturalists,

using the camera only as an aid to their hobby for accurately recording their observations. This surely is photography fittingly applied. For accuracy and minuteness of detail, as well as for rapidity of execution, it must stand alone, quite unassailed by the art of brush or pencil. Nor is its least attribute its absolute trustworthiness and inability to err. We may wrongly interpret the image it gives us through misjudgment of perspective or any other cause, but then the fault is with us and not the lens. A camera, fortunately, cannot think or discriminate : its method is entirely mechanical. We are prone to find it wrong in matters of colour rendering, but of course such apparent error arises from the fact that the plate and man are not equally sensitive to the same range of light ; but that does not make the one wrong because it is insensitive to red, any more than it does the other for being inert to ultra-violet rays. It is all a matter of standpoint.

Orthochromatic Plates.

But since there is at our disposal a variety of differently sensitive plates, it is only wise to select such as are in " colour-tune " nearest to our own standpoint, for thereby will things be represented more nearly as they appear to us. It is with this object that the manufacturers have placed upon

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the market the various orthochromatic plates and light-filters. Most of these are very excellent, and their use cannot be too strongly advocated in this work where greens and ruddy brown are so often present in the subject. They may with much advantage be used continuously for all subjects, without exception, for when their employment is really unnecessary they are in no way detrimental. Nothing is lost and much is gained by their constant use.

And now a word as to the nature of the photographs and of the subjects. It does not matter which of the two "schools" is being unconsciously followed, the pictures will be all the more interesting and valuable if they contain a suggestion of some act or incident, if, in fact, they embody a little story pictorially told. The object of the bird-photographer should not only be to secure portraits of the creatures he loves in stiff statuesque postures—the living prototypes of the dwellers in glass cases. Though such are useful, he should go further, and try to portray the living bird in some characteristic pose or action suggestive of its daily life, or else in some unwonted and peculiar posture telling its own particular story. An appreciation of such matters demands an intimate acquaintance with the creature, and calls into account all the latent information stored up in a

field-naturalist's mind. By this person, somewhat awesome to society, I do not mean one versed in trinomials and other technicalities, but rather one who, through the years of his life, whether they be few or many, has regarded nature sympathetically, trying to understand her working and her ways; one who sees not objects alone nor hears noises only, but one to whom each of these things conveys a story or a fact.

CHAPTER II.

APPARATUS.

IF THERE is one point more likely than another over which the beginner will stumble it is in the selection of his apparatus, and in no class of camera work is a suitable instrument more essential than in bird-photography. Fortunately, it may be said at once that this does not imply elaborate and specially manufactured apparatus; on the contrary, any really good field-camera will answer admirably. It seems to be generally taken for granted that intricate cameras of special make are essential for this work, and people are often almost disappointed on learning that the major portion of our work is done with so commonplace an instrument as an ordinary $\frac{1}{2}$ -plate stand-camera.

The Camera.

Photography has made such enormous strides in popularity since the advent of the film hand-camera, that as a result there is at present on the market an almost incredible variety of models,

and still the number is ever being increased. The vast majority of them embody none of the primary requirements of the naturalist's camera, the true attributes of which are strength and simplicity of construction. Remember at the time of purchase that your camera will sooner or later have to undergo the ordeal by tree, by cliff, or by water. Its life is to be a hard and a rough one, and a suggestion of weakness in any part should at once condemn it. The dealer's shop is indeed a valley of temptation. All around, poised daintily on glass shelves, or cased alluringly in rows, are charming little folding hand-cameras of diverse forms, each one a gem of workmanship, and by the maker's craft at once arousing our cupidity; while propped up in some corner is that very uninteresting (I had almost said forbidding) looking thing, a stand-camera. Small wonder that the beginner, advised by some older worker to purchase the latter type, should be torn by conflicting desires.

It would be difficult, if not impossible, to nominate the best camera for this work; the price the purchaser is prepared to give and the weight he is able to carry are both important factors, and as there is no perfect camera we do not wish to name specific models, but rather to define a type.

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If the pocket or inclination dictates the purchase of only one instrument of moderate price, then most certainly let it be a stand-camera of some well-known and substantial make, a tropical model by preference, as that means additional strength, and brass bindings at the corners and at other points liable to injury. Above all, let it be one designed for service and not for appearance only. Avoid sharply tapering bellows, for at times the sliding front will have to be greatly raised and depressed and then, unless the bellows are roomy and well fashioned, they are sure to cut off a portion of the picture.

A turn-table is much to be preferred to even the largest tripod-head, as apart from the rotary movement thus afforded greater stability is assured. A tilting-table is also useful as therewith the camera may be made to point downwards at any angle while the legs remain in the normal firm position.

The Shutter.

The camera must be fitted with a behind-the-lens shutter, as those placed in front on the flange are not only less secure and trustworthy, but, since the movement of the blind and cord is in them fully visible, they can rarely be re-set in the face of a sitting-bird, and are therefore frequently fatal to success.

A focal-plane shutter is occasionally extremely useful, but in a stand-camera is so seldom called into operation that it must be accounted a luxury rather than a necessity. Moreover, it somewhat increases the bulk of the instrument, ever a thing to be avoided.

The "Rucksack" Carrier.

Lightness, compactness and other points of portability, however desirable, must be wholly subordinate to strength and general usefulness. But though we are not able materially to reduce the weight of our camera in avoirdupois, we can, at least, in its effect. For years I carried a heavy case slung over one shoulder in the usual way until by chance, when ski-ing, I slipped the case complete into a capacious "rucksack," and since that day it has always been so carried. I do not, of course, suggest that a "rucksack" be purchased in which to put the case, such would be clumsy as well as unnecessary, the case itself should be fitted with straps in "rucksack" fashion. I do not know of such a one on the market, but any saddler would fit one up in a few minutes—two straps, the broader the better, to encircle the case one at each end, and then to pass upwards over the shoulders and down under the arm-pits, fastening to a ring or buckle on the bottom of the

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case. That is all, but it is surprising what a difference it will make at the end of twenty miles.

The "Reflex" Camera.

Having tried to emphasize that when one camera only is to be used, this should be of the stand pattern, it is necessary to add that there are occasions and subjects for which the instrument is quite unsuitable, and though these occasions are few, there are many others for which a hand-camera is just as, or more, convenient. Of this type of camera there is one pattern which stands out quite alone in suitability—the "reflex." This is, in fact, *the* naturalist's hand-camera, there is no other to him. But a word of caution is here necessary; these are essentially somewhat elaborate and intricate instruments, and unless of excellent manufacture, are constantly going wrong. Strongly as we recommend anyone to purchase one of these as his second camera, or his first, if he *will* have a hand model, we would equally urge that no one buy a reflex of other than the finest quality. If the high price demanded for this is too great, then let him save his money, and his temper, by not investing in the cheaper patterns. In the reflex, if in no other, the camera body is something more than a mere box, a setting for the lens; it is almost a living

part of it, and as such cannot be of too choice manufacture.

The focal-plane shutter, an almost essential part of this type of camera, seems prone to noisiness even when working at slow speeds, and although the sound is chiefly produced after the slit has crossed the plate, and, therefore, when the exposure has been secured, it is often sufficient to scare the bird away and prohibit further studies. I have not yet found one which did not make a considerable noise in working, but perhaps others may be more fortunate, and certainly silent working is one of the chief qualities to be sought.

A long extension is another necessity, the subjects often being at close-quarters.

There are other necessary features which will be possessed by a really good reflex, and, as none but the very best will be of service to the bird-photographer, these features need not be considered here.

The Lens.

About the lens there is but one thing to be said—let it be the best it is possible to afford. If everything else be meagre, let the lens be good. Don't grudge its price ; remember it is the lens that does the work ; the camera is only a fashioned box to carry it. If, as suggested, there are two cameras

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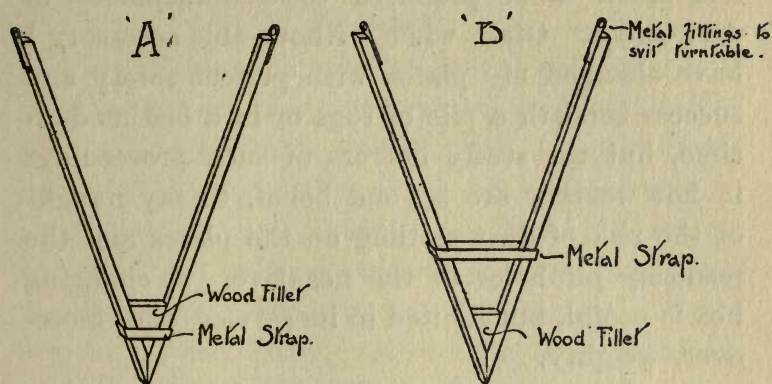
in the outfit, a stand and a reflex, it does not follow that there need be two lenses. One of superlative quality is far better than two of poorer make, for the former can be used for both cameras as required, and it is but seldom that we should wish to operate the two at once. Its focal length should be about fifty per cent. greater than that ordinarily allotted to the size of plate on which it is to be used, and of course it should be as rapid as ever possible consistent with fine definition.

I am not enamoured with the working of the telephoto lenses, nor with much of the work produced by them ; it is too often lacking in quality. Undoubtedly, however, one of low power is useful and may be included in the outfit as a luxury, but their lack of speed much curtails their usefulness, and except when stopped-down their definition is generally faulty. It is better to secure a small image sharply defined than a larger one of poor definition.

The Tripod.

The legs or tripod should be especially stout and rigid, anything in the way of flimsiness is out of the question here. The metal expanding type is wholly unsuitable ; strong ash legs are best, and in these the bottom draw-out portion should work very loosely until screwed up, otherwise after immersion in a river or lake or long exposure

to the rain it will become swollen and immovable.
A dwarf set of legs from twelve to sixteen inches



DWARF TRIPOD LEGS FOR USE IN HIDING TENT.

Inches 12 11 10 9 8 7 6 5 4 3 2 1 0 1 Foot.

long is very useful when working in a low tent. They need not be jointed nor have a draw-out portion, but be simply V shaped, and made of supple wood (ash or lance is best) with metal fittings to suit the fastenings of the turn-table or tripod-head. The sketch "A" gives the design of my own. The little fillet of wood is necessary to make the arms diverge sufficiently, and to give them a firm juncture, for there is considerable strain when the two arms are nipped together to fit on to the camera. This model would not do for those turn-tables to which the legs fasten by contraction; for such the sketch "B" is intended.

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The Changing Bag.

A changing bag of ample size is indispensable, and much to be preferred to a multiplicity of dark-slides. Often when without this accessory I have changed my plates with perfect safety and success beneath a pile of rugs or in a bed at day-time, but the stuffy horrors of such proceedings in hot weather are beyond belief, to say naught of the risk of dust settling on the plates and the resulting pin-holes in the negative. A changing box is useful, but limited in its service, and, moreover, weighty.

Camera Cover.

A very useful little piece of apparatus is a waterproof cover, to slip over the camera when it has to be left for hours at a time focussed on some nest. I think there is no such appliance on the market but one is easily made out of a piece of an old rain-coat or any similar material. It need be nothing more than an oblong sheet of waterproof with double tapes fastened to the four corners. Care should be taken to make it long enough to cover the whole of the bellows at their fullest extension, and wide enough to rather more than cover the sides, leaving an inch or so to project beneath, so that the water may drip clear of the camera. This will answer its purpose well enough, but if, by means of a deft needle, the cover is shaped and

given shoulders it will fit more neatly and securely to the camera, and such a one is less disturbed by wind.

The Release.

The shutter release, whatever its principle, is a most important item. When bird-work first began there was already in common use the pneumatic ball and teat, and although since then some twenty years have passed, nothing has been devised to equal it in general usefulness. In fact, this appliance is the ideal one for our purpose. There are no moving parts, not the slightest sound or creak in its working; it acts as well round corners and in and out of branches as in a straight line; rapid in response and without a sign of life in operation, it seems remarkable that a thing so suitable should have been found ready to hand. For all short distances up to fifteen or twenty feet its working is perfection, for twenty to sixty feet, and even beyond, it answers admirably though somewhat more slowly, but for greater lengths, though still of some service, we prefer to supplement it either entirely or in part by a thin line.

The line method of release, though possessing none of the finer qualities of the pneumatic, is nevertheless of much service. To employ it there is no need to remove the ball and teat that are

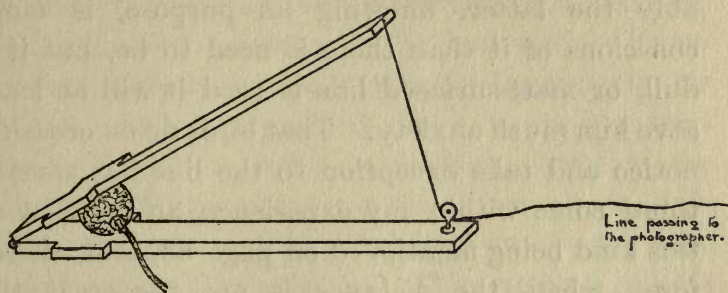
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fitted to the shutter. A slip-knot is passed round the little lever which is moved by the teat, and on the line being gently pulled the shutter is released.

When working at a distance it is difficult to know when the pull on the line has been sufficient to work the shutter, and in this uncertainty the pulling may be continued until the shutter is damaged or the camera upset. To avoid the possibility of this a short piece of thin cotton, only sufficiently strong to work the shutter, may be used to connect the line with the lever. Then if the line is pulled too strongly the thread is broken, the picture having first been secured, and no damage to the apparatus can follow.

In many cases where it is impossible to use a line only, owing to the tangle of branches through which it would have to pass and the friction which might be caused, it is convenient, if the distance be greater than the tubing will accomplish alone, to employ a combination of both methods. All that is necessary is a hinged lever either improvised as required, or carried specially for the purpose. The accompanying sketch shows the device. It consists of two pieces of wood, some twenty and twenty-one inches long respectively, hinged together. When in use the tubing from the shutter is passed out through the branches and

down to the ground at some convenient spot, if possible out of sight of the nest, and here the bottom piece of wood is pegged down. The



LEVER RELEASE FOR PNEUMATIC BALL

Inches 12 9 6 3 0 1 Foot

ball is then put between the extended arms of the lever, and the line passed round a little pulley wheel, and made fast to the end of the upper piece of wood. This done, the camera may be worked from practically any distance, for on the line being pulled the ball is compressed and the shutter released.

The line, especially when used alone, should be of the thinnest, but strong, material, and of a dark greyish-brown colour rather than black. A light fly-line is just the thing, but it must not be of the waterproof variety, as absence of gloss is even more important than colour. It is surprising how conspicuous a bright-surfaced line is in the sunshine.

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It seems to catch every ray on its highly convex surface and forms a shining line of connection between the camera and its hidden owner. Probably the latter, knowing its purpose, is more conscious of it than there is need to be, but if a dull, or matt-surfaced line is used it will at least save him much anxiety. That birds do on occasion notice and take exception to the line has several times come within my experience, an incident of this kind being mentioned on page 63, and, therefore, when the distance is not too great the pneumatic release is to be much preferred. Its tubing can easily be covered over with leaves, sand or earth, or buried in the grass. In theory, of course, there is no reason why it should not be serviceable in any length, but, as we have said, in practice its usefulness will be found rapidly to diminish after some fifty or sixty feet are put into operation. The ball, too, for such lengths is bulky, but the chief drawback is the slowness of its working. The expansion of the rubber tube under pressure allows a small quantity of air to be squeezed from the ball without exerting much force in the teat, and a much greater and more serious cause of this loss of, or delay in, working pressure is the compressibility of air. Twenty times the amount of air necessary to fill the teat may be squeezed from the ball into a long length of

tubing without the teat filling sufficiently to work the shutter. This can be somewhat counteracted by unscrewing the ball and blowing into the tubing as hard as possible, and immediately nipping the end tight and screwing on the ball again. There is then already a small pressure throughout the release, and less air will have to be squeezed from the ball in order to raise the lever of the shutter. To the same end the entire release, ball, tube, and teat may be filled with water, the tube being repleted by suction. This medium admits of no compression, and the release can be made to respond more quickly. Water-filled tubing should never be used in a tree, as the dependent weight would prove too great a strain for the walls of the tube, and it would part.

If some sixty feet of tubing are purchased, it will be found convenient to cut it into three irregular lengths of about ten, twenty, and thirty feet, having little metal screw-connections to join them together, as thereby any desired length can be coupled up.

With such a peculiarly suitable release at our command it would serve no good purpose to dwell on others, but mention may be made of the electric method whereby the returning bird may itself be made to operate the shutter, by making a contact between two wires, thus completing a circuit. The

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advantage here is that the camera may be left entirely untended and only returned to at intervals, so that the plates may be changed for fresh exposures. This method, however, leaves too much to chance; the photographer has no idea of the position of the bird when the picture is taken, and, as nearly all the pleasure and excitement of the work are lost, this method is only to be recommended for emergencies. Worked by the hidden photographer by means of a push button, such an appliance, being truly instantaneous over any distance, is valuable, its chief drawback being its somewhat heavy weight.

Of other items not much need here be said, as minor fitments used less often will be dealt with as they occur, but it may be mentioned that the camera-case should not only be really waterproof, but stout enough to withstand the corners of rocks and snags of branches which will at times assail it.

A stout line of good quality is a constant friend, not only for hauling the camera up trees or lowering it down cliffs, but in endless other ways besides; a deep-sea line in two or three pieces of about sixty yards each is just the thing.

CHAPTER III.

NEST-PHOTOGRAPHY.

NESTS are the natural starting-point for bird-work, and too much care and attention cannot well be paid to them.

It is obvious that if we cannot make a really satisfactory picture of a nest, an operation which can be performed at our own time and leisure and without the hindrance of a screen, it is nothing short of presumption to attempt the portrayal of a sitting-bird.

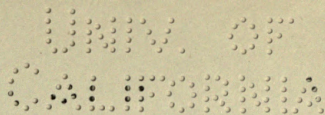
The variety of type of subject in nests is enormous, and there is ample scope here to acquire that general handiness and adaptability which are the prime factors of success in all bird-work. These subjects will serve to show how the kind of result desired varies in a marked degree according to the subject; sometimes a soft, almost flat, negative will best render the idea of protective colouring, while at others a brilliant one may be required to bring out the markings of the eggs, the materials of the nest, or some other special point of interest. But the aim in every case should be to

26 PHOTOGRAPHY FOR BIRD-LOVERS.

reproduce the subject as faithfully as possible, only artificially increasing or reducing the grades of contrast when this is absolutely necessary for a special purpose.

Not only do nests as a whole present an almost endless variety of subjects, but each individual one may be photographed from many different standpoints. It can be represented in plan from above, to show the full contents and its inside structure ; or the view may be taken from on level, giving the idea of its depth and shape, and of the outside materials and workmanship. It can be taken from a little distance to show its position and method of support, or, again, the object of the picture may be to convey an idea of the habitat of the bird, and, lastly, it may be taken simply as a thing of beauty from the most pleasing point of view. All of these have their objects and uses ; each serves the purpose for which it is intended, and between them are endless degrees and combinations, the choice of which is simply a matter of individual taste or requirement.

If our previous photographic experience has been chiefly confined to landscape and more or less distant subjects, then it is pretty certain that when we first turn our attention to nests the negatives will be under exposed. There is a principle, the theory of which we need not enter



THE
SANDPIPER



SANDPIPER'S NEST—EGGS ONLY.

into here, which tells us that the nearer the object to the camera, the greater must the exposure be, and as nests, being for the most part small in size, will have to be taken at close quarters, so will the exposure have to be correspondingly long. There is, too, another factor which must not be lost sight of; we want the utmost detail, not only in the lighter parts but in the shadows as well. Throughout bird-work an abundance of soft detail is desirable, and therefore we should take care, if we err at all in our exposures—and who does not?—that it is on the side of over—rather than under—exposure, for the latter tends towards harsh, crude negatives.

Nests on the Ground.

The simplest of all nests to photograph, and therefore the first to be attempted, are those placed openly on the bare ground. Usually in these cases little or nothing in the way of nest is present, a hollow in the earth sufficing, and since such rely for safety on their similarity to their surroundings, it is a mistake to make them appear prominent in the picture.

There is no latent difficulty in these subjects, they are simple and straightforward. Pointing the camera too vertically downwards is to be avoided, as it gives a flat and uninteresting result. If simply a study of the eggs is required there is no

28 PHOTOGRAPHY FOR BIRD-LOVERS.

disadvantage in doing so, but when a truer representation of the nest-surroundings is required, then it is imperative that the camera be kept as near to the ground and as horizontal as possible. It is a little thing, but a low view-point is the whole secret of securing those charming pictures which at once convey an idea of the bird's home and its surroundings, immediate and more distant, and which, to the photographers, vividly recall some lonely wood or wild open shore, and to the less fortunate at least convey a true impression of the bird's dwelling-place.

Wind-Screens.

Among the ground-nests, those like the Corn-crake's, built amid long grass or any flimsy vegetation, give much trouble if the day is at all windy. At times, by patience and waiting for a lull, a satisfactory exposure may be made, but as a rule the lulls are not long or absolute enough to allow the leaves to come to rest. There are always some leaves or blades of grass that seem to take a delight in dancing in the smallest breeze, and these should be at once removed or, better still, tied back. It is possible to split an exposure up into two or three parts, giving just as much each time as a temporary lull allows, but great care is needed lest the camera move a



OYSTERCATCHER'S NEST—A SUGGESTION OF THE BIRD'S HABITAT.



trifle, either by the slipping of a leg or the rotation of the turn-table when re-opening the shutter. When, by the constancy of the wind, even this is impracticable, there is nothing for it but to build a screen. If the site permits of it, the camera should be placed on the windward side of the nest, and a few stout sticks cut and thrust upright in the ground in a semi-circle, a branch or two being tied on them diagonally. On this frame-work let every available piece of cloth or clothes be stretched; focussing cloth, changing bag, coat, vest and any other pieces of raiment the keenness of the worker may suggest; and lastly, when all is ready, let the photographer kneel down, bulb in hand, blocking up the most exposed side with his body. To get the best result from such a screen it must be built as close up to the nest as possible, or the wind, swirling over the top, will reach the grass near the eggs. It should never be placed behind the camera, but underneath or just in front of it, when two of the tripod legs can form part of the framework. A sheet or two of paper will be found useful, as lack of wherewithal to cover the framework is often the difficulty. Pictures which, by reason of the incessant movement of the foliage, and the long exposure necessary on account of their position at the bottom of the grass, are quite unattainable without the screen we have described,

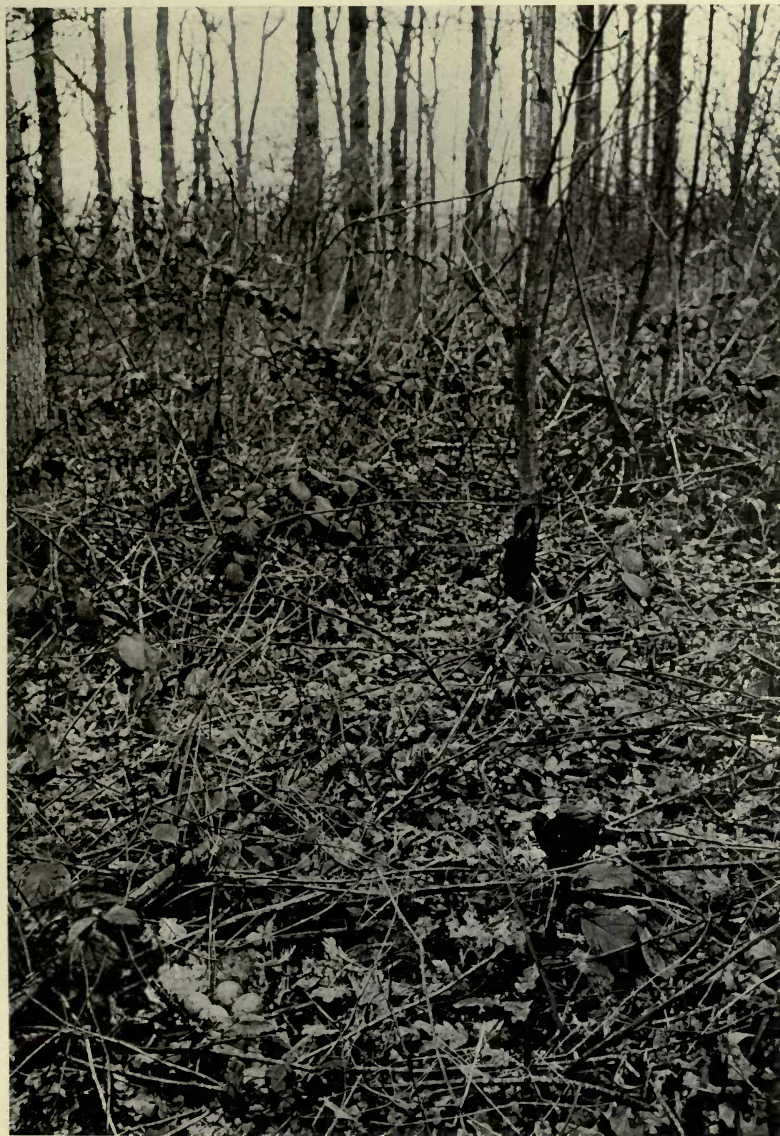
30 PHOTOGRAPHY FOR BIRD-LOVERS.

can often be secured with comparative ease behind the shelter it affords. It is well to be moderate on cold days in despoiling friends of their raiment. On more than one occasion, on a bleak day in early April out on the fells, have I tested friendship's bonds almost to the point of breaking, but the grateful warmth of being once again properly clad soon obliterates the feeling of discomfort, and leaves in its place a sense of satisfaction at the accomplishment of a charitable deed. Perhaps our keenness has on occasions exceeded the bounds of propriety, for I well remember a village policeman being sent to take charge of two escaped lunatics who were undressing in the middle of a meadow.

Nests in Deep Gloom.

At times, nests deep down in the bottom of dense foliage or under overhanging banks, are in such heavy shadow that though the exposure may have seemed ample, on development the plates hardly give any image of the nest. The outer and nearer foliage will come up strong and black, but the eggs themselves may not appear at all. We can get over this difficulty if it is not too pronounced, by giving a very full exposure, perhaps five to eight times the amount the outer foliage demands. This has the effect of levelling things up a bit. The nearer leaves will certainly be

THE
WOODCOCK
AND
ITS
NEST



WOODCOCK'S NEST—HARMONIZATION AND SITE.

much over exposed, but so they were before, while now the darker portions of the subject have made their presence felt, and if we use a weak developer, will come up not now hopelessly behind the others. If the gloom is very deep it may be further counteracted by throwing reflected light down into the hollow. For this it is preferable to use the polished surface of a dark-slide or the ground-glass screen, a silvered mirror throwing rather too strong a light. The general photographer will shudder at the suggestion of waving a dark-slide about in the sun-light; but, although a severe test of its light-tightness, unless it is able to endure it without showing a suspicion of fog on the plate it is not fit for our work, in which the slide will often have to remain in position at the camera back for hours at a time awaiting the bird's return. Such artificial illumination must be used sparingly, or by destroying all shadow it will bring about a flat and uninteresting result. The reflected rays must be kept moving throughout the exposure, never being allowed to come to rest on any part, or it will inevitably produce a light and unnatural patch in the print.

Sometimes in caves and in gloomy fissures in rocks there is so little light that one cannot see any image on the ground-glass by which to focus. In this case it is a good plan to stick a lighted

32 PHOTOGRAPHY FOR BIRD-LOVERS.

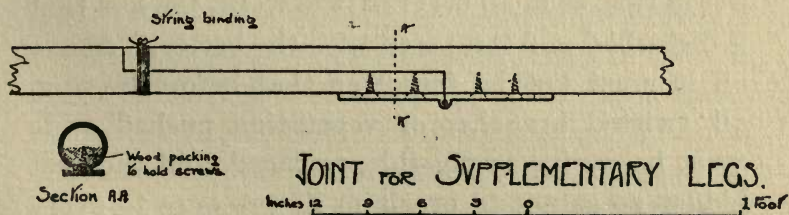
vesta to one of the eggs with clay and quickly focus for the flame ; then stop-down as far as time will allow, open the shutter and leave the camera to do its work, and if it takes an hour or more, what matter ? there is no likelihood of movement in such a subject, but, of course, the bird must not be allowed to return even should it be willing to do so.

Hedgerow-Nests.

The homes of finches and like birds built in bush or hedge are often too high to be photographed from the ground in the ordinary way, while the branches may not be strong enough to allow us to climb. An inclined ladder with the base-board of the camera hooked over a rung at a convenient height may offer an easy solution of the difficulty, and it has the advantage of being very rigid. But ladders are not always obtainable, and even when they are, there may be nothing firm enough to lean them against. There is nothing for it then but to supplement the tripod-legs. If the height has only to be increased by some eighteen inches or two feet, then probably three strong straight sticks can be cut near by and bound securely to the ends of the legs. They must be very stout, as being green wood they will be inclined to bend, and the slightest tendency on their part to do so means a shaky camera up above—a thing ever to be avoided.

Supplementary Legs.

When the nest is eight to ten feet up it is almost impossible to find at hand three suitable supplementary legs some six to eight feet long. The best and lightest form that these can take, when specially provided, is that of bamboo poles, but as a bundle of three, some eight feet long, is rather an awkward object to carry about the countryside, they may be jointed in the middle, but if this joint be other than a very rigid one it will defeat the whole purpose of the apparatus. There are two suitable joints, the one requiring more care at the time of making than the other, which in turn requires more attention in fixing for use. The former is a hinged joint as sketched, cut with a fret-saw, and if carefully made is very firm,



requiring only a few laps of string to fasten it. Bamboo being hollow, affords the screws of the hinge little hold, and it is well to pack the ends with hard wood. The other way is simply to cut the poles diagonally and to splice them together with abundant wrappings of string, as in some

34 PHOTOGRAPHY FOR BIRD-LOVERS.

fishing-rods. Either method, if carefully used, answers admirably and makes the camera stilts more portable; but these at the best, though at times essential, are clumsy pieces of apparatus, and not to be taken out except when a definite purpose is in view.

Small nests in the hedge-row are often so concealed by foliage that it is necessary to disturb them in order to get a view of the eggs. A picture may well be taken first to show the home exactly as the birds designed it, and then the branches bent away to disclose it further. At times, branches may have to be cut away, but the staring white ends of the severed twigs must be carefully concealed, either by smearing with dark clay or by bending a growing leaf down over them, but in this, as in all other nature work, the less that is disturbed and tampered with the better. Above all it must not be forgotten that before leaving, all twisted branches or vegetation pushed aside must be, as far as possible, replaced, and the nest hidden so as not to proclaim its presence to every passing boy.

Small leaves which have highly-polished surfaces are a source of much trouble and disappointment, marring many negatives which but for their ill effect would be choice. The light is reflected strongly by their shining, convex surfaces, and

they come out in the print as staring white patches without a semblance to a dark green leaf. The worst of these had better be nipped off, and the others bent into a fresh position so as not to throw the light into the lens, and a very full exposure should be given.

Nests in Tall Trees.

At first thought a hand-camera seems to be the most natural and convenient form for use amid the slender branches of lofty trees, and it is constantly taken for granted that a tripod cannot possibly be of use "up there," but in point of fact there is probably no place when the despised legs are more essential than in tree-work. It may be said at once that nest-photography is, broadly speaking, time-exposure work, the great depth of focus required, dictating stopping-down and a consequent long exposure; and what chance is there of finding a firm resting place for a hand-camera on the narrow rounded limbs at the top of a tree? No, this is emphatically the place for the tripod. The legs can be spread out and lashed to any convenient branches, the great difficulty arising when branches are absent. A nest placed in a tall, thin larch with only a tuft of feathery branches at the top, is the extreme of difficulty. Sometimes the summit of another larch standing near by (and these trees rarely grow

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alone) will afford a coign of vantage whence to look across on to the nest, but failing this there is but one alternative, and that not an easy one, to climb past the nest and to bind the camera, pointing straight downwards, to the stem some few yards above the nest, and thus secure a photograph in plan—never a pleasing picture, but sometimes the only one that can be obtained.

I have already mentioned what an excellent support an inclined ladder makes, for the camera base-board can be hooked over any convenient rung, and can be made very firm. Tall ladders are rather difficult and weighty to manage in a tree, but even a short one will often enable a position, otherwise unattainable, to be secured. The ladder is pulled bodily up into the tree, and the bottom rung set astride a stout bough. The top is then allowed to slope outwards towards the nest until it is well inclined, and then made fast to the upper branches with ropes. This sloping is most important, giving the ladder stability, and, moreover, placing the photographer nearer the nest. In windy weather a tall ladder is somewhat dangerous in a tree, and if not considerably inclined, never making an angle of more than sixty degrees with the horizontal, it may in a sudden gust blow bodily over.

Sometimes a nest at the extremity of a very long out-growing bough cannot be approached

sufficiently near for our purpose, and if its height from the ground is not too great, the ladder may by the help of a few guy-ropes be reared up vertically beside it. This plan is only to be attempted as a last resource, for a ladder is rather difficult to fix firmly in this position, and is moreover far from pleasant to work on. Its only merit, but that a real one, is that it may put within our reach pictures quite unattainable without its aid.

This tree work is perhaps the most enjoyable of any, calling for much ingenuity and activity ; it is, however, often a lengthy business, and hurry is as much to be avoided in this as in other branches of the art.

Getting the Camera Up.

When ascending trees it is a sound plan to leave the camera in its case with the legs tied thereto at the tree-foot, and climb up with a stout line, one end of which has been made fast to the case. It saves much trouble later on, if on the way upwards you keep to that side of the tree having fewest branches, breaking off all rotten snags, and keeping the course as vertical as possible.

Arrived in the neighbourhood of the nest, you can tie the end of the line to a convenient limb until again required, for it only gets it tangled to drag it in and out of the branches as you climb

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about looking for a standing-place for the camera. This found, it is more than likely that something will have to be cut away either to clear the view of the nest or to make more room for the camera, but, as far as practicable, it is better to bend and tie back rather than to cut off. All being ready the case may be hauled up, and incidentally there is no need to unfasten the end of the line which has been tied to the limb, for cold fingers have been known to drop a line, and this necessitates climbing down and up again. If the tree is not too bushy and the path upwards has been well chosen, the case can be hauled up easily, a little jerking overcoming the tendency to catch on the under-side of branches, while repeated lowering and hauling through a few feet will give the case a swinging motion and circumvent the most tenacious branch.

When it is safely up, one is at first somewhat embarrassed, for though one may be sitting astride of a limb with both hands free, the lack of a third prehensile member is sorely felt. A little method saves a deal of bother. Hitch the line round a convenient branch on the main stem, open the case and fasten it up by the handle, then it is safe and its contents are readily accessible.

First put up the tripod and lay it across the thighs if no better place offers, then open out the camera, screw in the lens, shutter, and other loose

parts, and lastly fasten on the legs. If the camera is made ready first, there is nowhere to put it while the legs are being extended, and with only one hand to work with, something may be dropped, and even the soundest of apparatus, tropical or otherwise, is not improved by a fall of sixty feet or so.

If one is fortunate enough to have a companion on the ground it is a great help, and things are much simplified, in fact how great a help is not realized by one who has been constantly thus aided, till a day comes when he finds himself alone. One can then put the line in a pocket in a bundle and climb up free, turning this way or that as the branches offer, without a thought of a tangled line beneath. Arrived at the nest, and having made fast to a branch one end of the line, the rest of the bundle can be thrown down on that side presenting the fewest obstacles, and the camera, which in the meantime our assistant on the ground has erected, can be hauled up complete and ready for immediate work, to be followed by the dark-slides, etc., as required.

This saves a great deal of time and bother, and when fixing the camera in position we can easily haul up a rail, a branch, or other odds and ends, and thus save a journey down.

A compromise can be effected when alone by

fitting up the camera all complete, tying the focusing cloth over it, and having made one end of the line fast to the handle, leaning it against the tree-foot. Then climbing up a careful course with the dark-slides in the pockets, the camera can be drawn up as before ready for use. Any of these methods is, as a rule, preferable to climbing up with the case and legs strapped to the back.

Fixing the Camera among the Branches.

As to the actual fixing of the camera among the branches not a great deal can be said, as so much depends upon circumstances. It is seldom, however, that a suitable place can be found for the points of the tripod legs; they usually have to be bound to the boughs, and for this purpose tape is the best material to use, since it is less liable to slip on the polished wood than is string. A good length is needed, for the legs must be made very firm. Often a supplementary leg, such as has already been described, is useful to gain support from some branch otherwise out of reach. The chief thing to be borne in mind when fixing the camera, is to keep it as truly plumb and horizontal as possible; a camera that is askew tends to make the nest appear sloping to one side and unnatural. Never mind the conventional attitude of the tripod, let the legs point anywhere, up or down, this way or that, so

long as they find support, but keep the camera itself square. If, when all is ready for the exposure, a tripod-leg happens to be resting on the same branch as yourself, it is better, unless the branch is a very thick one, to climb up or down a little and work the shutter pneumatically from your new position, as otherwise the slightest movement on your part will send a tremor along the branch, vibrating the camera and causing a blurred picture. When striving to get into some position from which to obtain a view of the eggs, it is very tempting to tilt the nest or to depress the near side of it, and thus expose its contents ; in fact I think there will be few who have never availed themselves of this expedient. It is, however, a bad practice to adopt, and the result will be more natural and therefore more pleasing if the nest is left in its proper position, even if only one egg and portions of one or two others are visible.

Nests in Water.

Nests in cliffs will hardly be attempted by a beginner, and are dealt with fully in a later chapter. There is, then, but one other class of situation which calls for special mention—that chosen by many water-loving birds. This really might almost come under the heading of the ground-nest, though, in truth, some have little connection with *terra*

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firma, but it is the nature of their surroundings that calls for special treatment.

To face the source of light is ever to be avoided in photography, and doubly so when water is included in the subject, for its shining surface throws the light up into the lens, producing ugly white patches in the print and often a general effect of fog or diffused halation from the lighter portions. When the depth of the water surrounding the nest is not too great to permit of wading, all is straightforward, but if a boat has to be used the matter is not quite so simple. Since we may take it for granted that there will be some vegetation near the nest, the depth of water will rarely exceed a few feet, but the soft, almost fluid, mud may be of great depth. Often there is a stratum of submerged and matted vegetation, and this may prove strong enough to carry the camera if it is gently lowered, but while adjusting it and inserting the dark-slide one has to be careful not to press downwards, or the stratum of vegetation may be suddenly broken through and the camera may disappear beneath the surface, as below the matted weeds there is again liquid mud. It is almost useless to throw down bundles of reeds as support for the camera, since the sharp points of the tripod gradually find their way through; but it is quite surprising how much support

may be obtained even in the most sloppy mud, by tying crosswise to the end of each leg two pieces of wood a foot or more long. When this rather awkward-looking arrangement is lowered over the boat-side, it at once finds resistance in the mud, but, of course, if the actual water is deep no such device can be of any service, and the long bamboo poles may again be used.

Time-exposures from the boat itself are not often satisfactory, and are only possible in the calmest weather. If the day be really still, and the occupants of the boat remain equally so, then there is every reason to expect success, provided there is no current in the water, but so delicately is a small boat poised in water that the slightest movement, as the mere act of leaning over to release the shutter, is more than sufficient to cause motion and to blur the picture.

Getting the Camera Across to an Islet.

Many of the water-loving birds build on an island in a lake. Once there the task of photographing the nest is simple enough, but in the absence of a boat the difficulty is to get the camera over. To swim across, holding a heavy $\frac{1}{2}$ -plate camera safely above the surface, demands more strength and proficiency in aquatics than the majority possess. A better plan is to press a

44 PHOTOGRAPHY FOR BIRD-LOVERS.

friend and the ever useful line into service. Swim across with one end of the line made fast to you, preferably by passing a loop over one shoulder and under the opposite arm—an apparently small point, the importance of which was once forcibly impressed upon me. I was swimming over to an islet in a Hebridean loch, with the line tied loosely round my chest. When some two-thirds of the way over, and just as I was struggling with some floating vegetation, the line slipped downwards, binding my legs together and rendering them useless; since that time I have always passed the line over one shoulder.

Having reached the island, make for the highest point near the mainland—the man on shore must also seek high ground if there is any near the edge of the loch—then pull the line taut, and it will rise high above the surface of water and form a kind of “blondin,” by which to send the things across. There are two ways of working the line, the first, and that which we usually adopt, necessitating but one line. The man on the shore fastens the camera case to the line itself, and when all is ready slowly and smoothly pays it out, the other on the island as carefully hauling it in, keeping it always taut to prevent it sagging, and so working the case across. A moment's thought will show that the length of the line in this case must be just

double of the distance from one man to the other. It must also be very strong, as the strain necessary to keep the case from touching the water is very severe, especially if the shores are low and far apart.

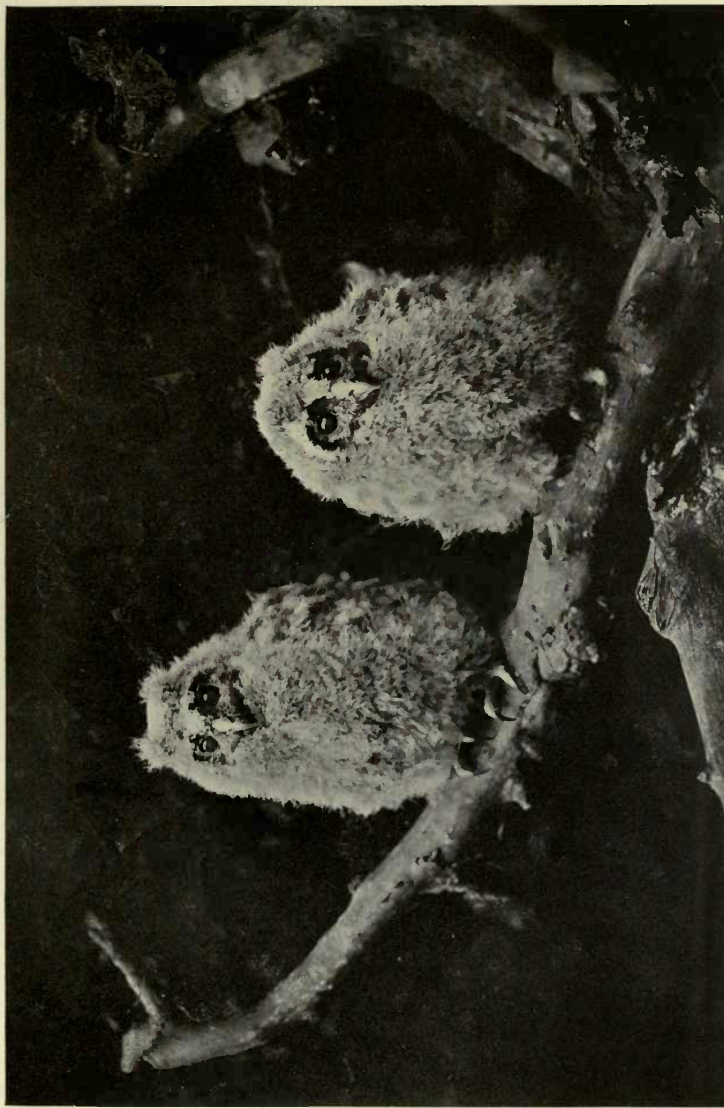
The other method requires only half the length of stout line and a similar length of a lighter one, that used as the shutter-release being just the thing for the latter. As before, a "blondin" is stretched across, but this time the case is not made fast to it, but to a ring sliding upon it. This ring and the camera attached to it can be easily drawn along the "blondin" or stout line which, of course in this case, does not move, and may with advantage be passed back over one shoulder and made fast round the waist. Then both hands are free for hauling in the light line, and by simply leaning backwards the "blondin" may be kept very taut. If more convenient the line may be tied to a tree or a rock.

CHAPTER IV.

PHOTOGRAPHING YOUNG BIRDS.

THE photography of young birds forms a convenient and transitional step from the comparatively easy still-life subjects we have been considering to the more advanced work on the parent bird. No branch of the art calls for more patience, I had almost said self-control, than does this. To be frustrated for a whole day by some cunning and wary mother-bird is not one-tenth part so exasperating as to be beaten, though only for an hour or so, by a little down-clad youngster but a few days old, which obstinately refuses to face or be faced by the camera. In the former case there is ever, to the last minute, a feeling of sport and excitement: the next moment may see the bird returning and the realization of our hopes; but in the latter it seems ridiculous to be beaten by such an inexperienced mite, and exasperation is the word that best describes one's feelings.

Some chicks are just as obliging as others are annoying, and either face the camera with total



YOUNG LONG-EARED OWLS. (BRED IN CAPTIVITY).

unconcern or evince curiosity and even furious anger at its presence.

It is always a great mistake to handle chicks unless absolutely obliged to do so. If they have already left the nest of their own accord, it is well to take them just as they are found, even though it may be difficult and occupy much time, for once they are frightened it is long before they settle down and become themselves again; and even when at length they are apparently at ease, they readily take alarm again, and look scared and gawky. If their situation is quite hopeless it is best to try to make *them* alter their position by some means or other, and only as a very last resource should they be handled and lifted, for nothing so alarms these youngsters as touching them; it often makes them too terrified to perch properly, and, as a consequence, they will cling in a reclining position feebly and awkwardly gripping the branches.

A chick, like all other young life, is naturally curious in a high degree, and the alarm at the intrusion of a human being rapidly turns to interest and curiosity if one keeps still and gives no further cause for flight.

If we catch him in this perky attitude he is looking his best, spry and alert, and one picture of him then will be more prized than a dozen of him cowering in fright.

48 PHOTOGRAPHY FOR BIRD-LOVERS.

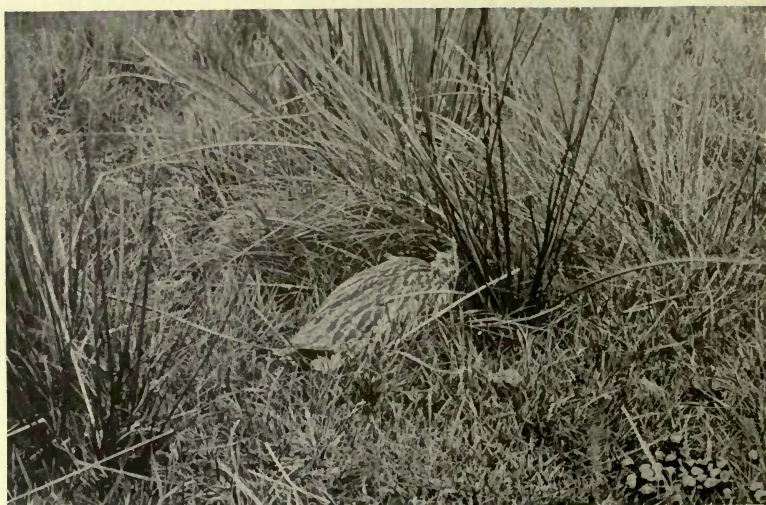
Little baby-chicks, clad only in a shining skin and a hazy suspicion of long hair-like down, are difficult to render satisfactorily; they are best taken from a little distance, or the idea of the long transparent down is lost.

They are not pretty or attractive, and one rarely sees photographs of them, but what they lack in beauty is outweighed by the interest attaching to them. Very little of the early lives of birds has been recorded photographically or otherwise, and this branch of work is the more to be encouraged since this chapter in a bird's life is so very brief and transient that few are familiar with it in all its diverse forms. A man may have gained acquaintance and familiarity with a certain bird at odd times and places during many years, but if he has not happened to come across it during a brief week or two in spring, he knows nothing of its nestling days.

But we wish not only to represent the chicks themselves as creatures in our pictures, but also to give some information about their habits. It might be thought that a really good study of the one would necessarily include the other, but it is not always possible to accomplish these two objects in the same picture. The young of most ground-building birds instinctively run away on the approach of danger and crouch in hiding.

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YOUNG CURLEW HIDING.



YOUNG CURLEW ON PARADE.

Now, it is obvious that a photograph of them thus hidden, although it may illustrate this habit admirably, cannot possibly convey a good idea of the chick itself, since if it serves to show the bird's cleverness in concealing itself, the youngster will be wellnigh invisible. Two or more pictures must in such cases be taken, and it is of importance that the one showing the hiding should be taken first, for though the chick will remain motionless for a long time if undisturbed, once let him be removed and handled and he will not again so carefully conceal himself as when he first sought cover in obedience to his mother's warning cry.

Other chicks, especially those of raptorial birds, when vehemently resenting the intruder's presence, make an admirable display of themselves, but one has to be ready at once to snap them (instantaneous work is here almost essential) for they soon calm down and lose their fierce and characteristic manner. They may be aroused again by shaking something in their faces, but promptness in seizing the desired moment is half the battle in chick-photography.

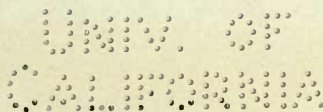
A too frequent source of failure here is under-exposure. We can approach the youngsters so closely that, being mostly small objects, they get represented on a large scale, and we must, as said before, increase the exposure to compensate for a

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near approach. There seems to be a natural impulse, probably fostered by its general difficulty, to try to represent the bird as large as possible, and when, as with a chick, the working distance is at our own selection, we tend to indulge the impulse to excess. Remember that a small sharp picture is much to be preferred to a large and badly-defined one. The former may be subsequently enlarged, and at the worst produces the latter, but the converse of this does not hold true. Do not strive for size, but rather for quality in the image.

Short-Time Exposures.

Short-time exposures, though productive of some complete failures through the movement of the chick, are particularly useful, and their discreet use for other living subjects besides young birds can hardly be over-estimated. Careful observation of a bird's actions will often enable one to anticipate momentary periods of stillness, and with a little patience exposures of from a half to two seconds may be given on subjects apparently not at rest, while for birds sitting on their nests and otherwise naturally still we have at times, with the lens stopped down, given exposures of a minute or so, and in rare cases, as with a Partridge in the bottom of a dark hedge, of even double that time, without a sign of movement being shown on the negative.



YOUNG SANDWICH TERN—HARMONIZATION.

TO VMD
ADDON LAD

In fact, as will be seen later, were not short-time exposures fully practicable, bird-photography in colour would be a thing at present almost impossible.

CHAPTER V.

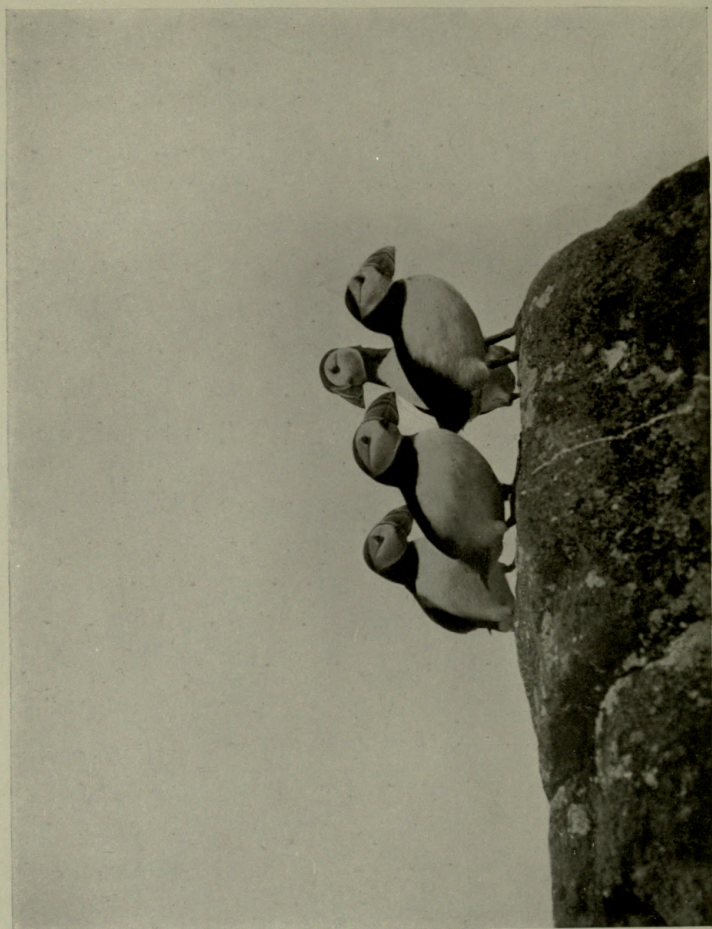
PHOTOGRAPHING BY THE STALKING METHOD.

THE stalking of birds has a fascination all its own. It is the realization of our natural impulse to try to approach a quarry stealthily rather than to lie hid awaiting its advance. It is, however, comparatively seldom practicable, but when circumstances do permit of it, then probably the keenest enjoyment of the bird-photographer is experienced.

The subjects amenable to stalking chiefly fall into two distinct classes ; it is of no small practical importance to know under which class a given bird is to be considered. Such discrimination is a part of the stock-in-trade of the true field-naturalist. In the first group may be placed those birds which, through their tameness, lack of fear (two very different qualities) or down-right stupidity, allow us to approach them closely. For the most part these are "sea-birds," which choose for their homes the lofty cliffs, or the less bleak and inaccessible parts of the coast.

In the second group may be included such birds as allow of our approach, not because of their in-

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PUFFINS AT HOME.

difference, courage or imbecility, but because their instinct tells them—particularly during the breeding-season—to “lie low” in hiding, in the hope that they will be passed by unnoticed. These, unlike the former, are most certainly alarmed at our presence, but rely for safety on concealment rather than on flight.

Of the former group the auks might stand as examples, while for the latter the game-birds take their place; and it may be of some service if we now follow in imagination, first the stalking of a Puffin and then that of a Grouse.

Stalking a Puffin.

Where auks occur it is generally in large numbers, and if we are stalking Puffins, for example, it is more than likely that we shall come across four or five of them sitting together on some boulders. The moment they have been marked down as our goal, slow (would we could add and “sure”) must be our motto. Nothing so readily alarms a bird as a sudden jerky movement. Long before the final stalk begins, in fact as soon as we come into view of the quarry, any quick, abrupt action should be avoided. The reflex camera is now put in readiness, the shutter set and the dark-slide inserted, so that when at close-quarters with the bird there will be no cause for delay or sudden

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disconcerting movement. The direction of the approach should be at once decided upon, regard being paid not only to the facilities the ground affords for stalking, but also to the direction of the light. And here it may be pointed out that our methods of stalking are precisely the opposite from those usually adopted by the sportsman. Cover is a thing to be avoided! Even if it were possible to approach a bird closely and unseen, the moment any portion of the photographer or of his apparatus emerged from behind the cover, the bird would flee precipitately. We must rather start, and remain throughout, fully in view, trying by our actions to allay fear and arouse curiosity.

When once the stalk has been embarked upon, the advance will often perforce be exceedingly slow, and a crouching or crawling attitude naturally suggests itself as being less alarming than an upright one. Most important is it that every movement and action should be characterized by smoothness, and as one creeps carefully forward, ever watching the manner of the bird for signs of undue nervousness, the limbs should be moved deliberately one at a time. It may take twenty minutes to gain as many feet, for often the path is among a chaos of boulders or along the gentler slopes of a cliff-face, but if the birds are resting they will keep up their interest in you for twice

that time. This slow, smooth advance is a sore trial to the muscles, especially when one has to pull oneself imperceptibly from ledge to ledge, rising on one bent leg while the other is gradually pulled up. At the slightest indication of the bird's intention to depart one must "freeze" and remain motionless or retreat stealthily a little, until it has regained composure, when again the slow advance may be resumed. The secret of successful bird-stalking lies in an imperceptible approach.

Imperceptible Movement.

Ordinarily we move so carelessly and thoughtlessly that when first attempting stalking we are surprised at our clumsiness. The best way to learn the "art" is to consider each arm and leg as a separate unit to be dealt with independently. Suppose one is on all fours, with the camera slung in front. Gradually take the weight off one hand and work it forward so slowly that the bird will hardly notice that it is moving, then allow the weight to gather on it, and in the same way bring up the opposite leg; then the other hand is put forward, in turn to be followed by the other leg. By now the bird has become accustomed to the first hand in its new position, and it may again be worked forward, and so almost imperceptibly the whole body steals along. If, however, from the

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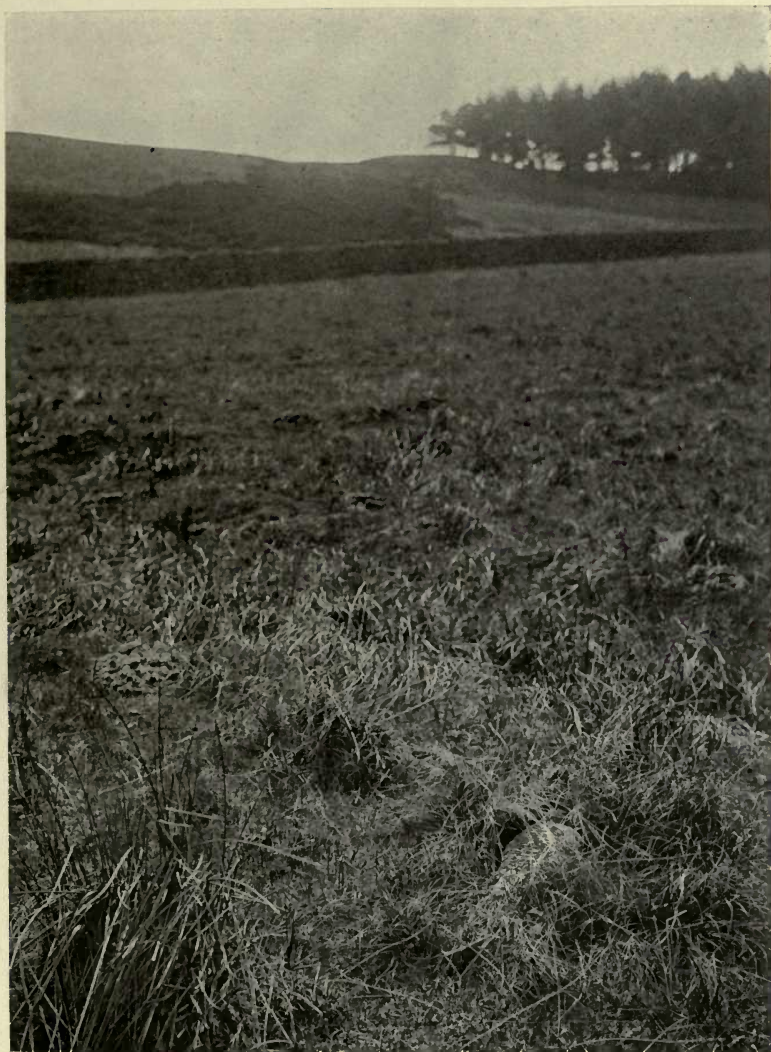
outset, the birds exhibit signs of fear, it is advisable to approach in a zig-zag course, and not to make directly towards them.

How often when beginning does one just get within a workable distance, but while securing a focus and with success almost within our grasp, a flutter of wings announces the birds' departure, and the failure of a lengthy stalk. In fact, so often does this happen that it would seem as though Fate herself were against the work, but fortunately the fault is generally in us. In the excitement of the moment and the eagerness to secure what has been sought so long, the slow steady movement, the prime factor of success, is almost forgotten. One is kneeling quite still and there seems to be then no fear of making a disturbing movement, nevertheless one's hands are busy with the camera screws, and to reach forward quickly to alter the diaphragm is more than enough to leave one facing a tenantless boulder.

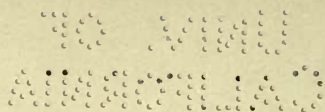
Stalking a Grouse.

Now let us suppose the subject to be one from the second group—a bird relying for its safety on concealment. We may be quite certain that it is fully aware, and fearful, of our presence long before we detect its whereabouts. It has had its eye on us ever since our heads appeared above its horizon,

THE
GROUSE
ON ITS NEST.



A GROUSE ON ITS NEST.



and its one burning fear has been that we should come in its direction and discover it, and a long and steady stalk ever bringing us nearer and nearer could but have intensified this dread. A sympathy with, and an understanding of, the creature's standpoint helps us much. Her life has given her an instinctive dread of being stalked and pounced upon; she hates the thought of anything stealing upon her from behind. Therefore, to avoid approaching from the rear is our first precept, and it may not be without effect if we try to strengthen her faith in the completeness of her concealment by passing aimlessly near her a few times, halting here and there just as she has seen beasts and shepherds do many times before. Then on one such tack stop right in front of her as close as may be. Again avoid sudden, jerky movement, but secure a focus with all speed, for her faith in her invisibility is suffering a severe trial. Such subjects will demand a very full exposure for if not actually in part concealed by foliage, they are at least deep-seated in the grass or other herbage and much in shadow. For this reason we prefer to use a stand-camera, but it is a debatable point which instrument is best, and a preference for the stand-camera is probably more a matter of use than of distinct advantage in this case, for the spreading of the legs is a cause of much alarm to the sitting bird.

CHAPTER VI.

PHOTOGRAPHING BY THE CONCEALMENT METHOD.

UNDER this head falls the vast majority of the work of the bird-photographer. It would hardly be too much to say that this is bird-photography as generally understood, the other branches of the art being but secondary. Certainly it is by this method that most of those delightful pictures portraying the intimate home-lives of our shy birds are obtained. But it is not only for the excellence of its pictures that this method is to be upheld, it has another and perhaps greater attribute: it affords a lengthy and uninterrupted opportunity for studying the habits and actions of birds at such close-quarters, and under such favourable conditions, as were never thought possible before the advent of the hobby.

No branch of the work is more varied in its methods and adaptations, but there is one fundamental idea—to hide oneself and camera, either together or apart, as near as possible to the nest, and then to await in quiet the bird's return.

There are two quite distinct principles of working, differing much in their methods and advantages. The first, which may be termed the "double" method, is to conceal the camera close to where the bird is expected to appear, while the operator is in turn hidden separately at some convenient distance. The second or "combined" method, is for the photographer to hide himself and the camera in the same screen.

Modus Operandi.

Success in either case depends mainly on absolute concealment, and the means by which this may be attained are simply endless. First of all, it is of the utmost value to have an idea of the characteristics of the bird we are working with, otherwise, in our zeal to make the hiding-place secure, we may raise such a mountain near the nest as will cause the bird to forsake it. Few birds are prone to do so except under the greatest provocation, but some are very indifferent mothers and have no scruples about deserting. There is, too, a strong personality among birds, individuals of the same species varying greatly in this as in other respects. It is well, therefore, to feel one's way a little before erecting any structure of an alarming nature near the nest. A small mound of sods, branches or whatever suits the site, can be made

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some twenty to thirty yards from the nest, and need not be more than a quarter of the size of what will eventually conceal the photographer and his camera. Probably the birds will pay but little attention to this, and having allowed a few hours, or preferably a day or so, to pass in which to get them familiar with it, we may bring it to within ten or fifteen yards and double its size. Again, after a lapse of a day or, better still, of a night, it can be moved up still nearer, this time perhaps occupying its final position and assuming its ultimate proportions. But on its completion it is always advisable to leave the birds in peace until they have quite settled down and become thoroughly accustomed to its presence. Of course, such an outline of the *modus operandi* can only be suggestive. Many of the small warblers and hedge-row birds are so tame and unsuspicious, that I have on more than one occasion found their nest, completed the "hide," and secured a set of pictures from close-quarters with the sun ever on its decline in the west. In fact, so confiding or indifferent are some of these feathered mites, that their portrayal lacks the charm of difficulty. On the other hand, some of the others, especially the larger ones, are so shy and wary that I have often spent a week or more in these preliminaries before actually attempting photography.

The 'Double' Method.

As mentioned before, sometimes the camera is hidden alone near the nest, the operator being concealed some 40—100 yards away, working the shutter from there. Undoubtedly this is the easiest and most speedy way to secure bird-pictures, for the camera is so comparatively small a thing that it may be hidden with an expenditure of one-tenth part the time and trouble needed to build a screen for the photographer as well. The two great draw-backs to this way of working are: first, that even through binoculars we do not see so clearly the actions and habits of the birds as with the naked eye at closer quarters; and, secondly, that after each exposure we have to make our presence known and cause the birds renewed alarm by leaving our concealment and going forward to reset the shutter and insert a fresh plate. This, of course, means another period of waiting until the birds are once more assured that all is well. Still, despite these two very serious objections, it is a method often to be followed, and not infrequently offers the only reasonable solution of a difficult problem.

Photographing a Sandpiper.

I remember once being very anxious to secure pictures of a Sandpiper at its nest, but this nest,

unfortunately, was placed among the *débris* of a narrow line of drift-wood which indicated the high-water mark of some winter's flood that had come boiling down the moorland stream. All around for more than 30 feet there was not cover enough to hide a golf ball. Save for this thread of flattened drift-wood, there was nothing but the hard sheep-cropped fell-grass, rivalling in its shortness that of a well-kept lawn. To attempt to build a hiding-place here seemed too impertinent, and the only thing that offered any promise of concealment was a small gorse bush growing some forty yards away. This I cut down, and gradually moved towards the nest, until some four days later it stood about eight feet from it. But since the whole bush could be picked up in the arms, it could not possibly conceal a man, and, as ill-luck had it, the nest being on a promontory, there was no other cover on the same side of the stream from which a view of the eggs could be obtained. The thing seemed almost hopeless, but the elasticity of this double method saved the situation. On the opposite bank was an old stone-wall and in front of it grew a dense patch of gorse, an ideal place to hide in. From here I could look straight across the river and up the sloping bank to the nest, and through binoculars I could just see the tops of the four eggs amongst the drift-wood.

When the camera had been carefully fitted into the middle of the little bush we had moved up, only the lens was visible, protruding from its midst. Then a fine line was led out from the lever of the shutter, over the grass down to the stones, across the river and up the other bank into the gorse thicket by the wall. The plan worked excellently, and before I had been in hiding long I had the satisfaction of seeing the trim little Sandpiper making her way hesitatingly along the line of drift-wood, and within a few minutes of her first appearance she was contentedly sitting on her eggs. A day or two later, while still working at this Sandpiper, I saw for the first time definite proof of the release-line attracting the attention of birds. (Since this I have observed it on other occasions.) I had been waiting long for the Sandpiper's return, when suddenly there was a commotion on the beach on my side of the river. At first it sounded like two birds fighting, but the noise steadily increased in volume and intensity. Curiosity proving stronger than discretion, I raised my head high among the gorse-bushes and could then see on the beach beneath and in the shallow water, a little group of Lapwings excitedly examining and occasionally pecking the shining silken line which, in the gentle breeze, was alternately kissing and leaving the surface of the water and making

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divergent ripples. How long this might have continued one cannot say, for fresh arrivals were constantly appearing, attracted from the neighbouring fields by the commotion, but one clumsy new-comer, swooping low over the surface of the stream, struck the line with his wing, precipitating himself into the water, and so startling the others that the congregation immediately dispersed.

Effect of Wind on Release Line.

Wind is a great nuisance when working a long length of line, and it is certainly desirable, even if thereby the length has to be increased fifty per cent., to work the line in the direction of the wind and not across it—that is, to be hidden directly to leeward or windward of the camera. At any time the line has a mischievous habit of becoming entangled with any and every possible obstacle. This danger, however, may be reduced to a minimum by working it in the direction indicated, taking care to keep it always taut, and putting as much strain upon it as is possible without running the risk of accidentally working the shutter. This keeping of the line taut serves another purpose, as when it is deliberately pulled to make an exposure it moves comparatively little, and does not frighten the bird anything like so much as when it is tightened suddenly from a slack position. But if the line

is stretched across the wind on a boisterous day it cannot pass in a straight line between oneself and the camera, it must go bellying out down the wind, and if we attempt to pull it straight the shutter will almost certainly be accidentally released. Since birds have little or no sense of smell, we need on that score have no scruples about taking up a position to windward, but, of course, sound, to which birds are extremely sensitive, will be carried with the wind much more readily than against it.

We have heard of cases which *could not* be attempted because the position of the camera was fixed by the nature of the site, and the only hiding-place was on the right-hand side of it and beyond the reach of the tubing, while the shutter arm was on the left! The admonition so dear to the schoolmaster, that there is no such word as "can't," should be fondly cherished by the bird-photographer. Fortunately in such cases as this, there are many ways of overcoming the difficulty. We have already seen how the pneumatic release may be lengthened almost indefinitely, and here a short length of tubing, a lever and a line, would at once give a workable release, or the line method alone can be adapted to meet the case. This can be done very simply by fixing a little pulley-wheel, such as is used for window-blinds, at some point

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to the side of the camera on which the lever-arm of the shutter is placed. Then, if the line runs from the hide past the camera, round the wheel and back up to the lever, the "pull" is in the right direction. If the tripod happens to be widely spread, and the camera low, the end of one of the legs is a convenient place into which to screw the pulley.

It is easy, when working at a distance and not in a line with the axis of the lens, to mistake the position of a bird at the time of releasing the shutter. We have to bear in mind that our standpoint is not the camera's, and what is then a "full face" to us may be a side-view to it; we have to watch the bird's movements critically through our glasses and at once translate what we see into the view-point of the lens.

Birds' Inability to Count.

As bird-lovers we are sorry to have to admit it, but we must confess that, in our opinion, the intelligence of birds is, in many ways, small in the extreme. All their other senses seem to have been sacrificed in the development of those of sight and hearing, but the point which concerns us immediately is their inability to count. We trade upon this deficiency very largely when working by concealment. However well the hide

may be constructed and hidden, if we approach it alone and creep in, many birds will desert their eggs sooner than return; they see us disappear into that lump and henceforth that lump becomes to them a source of burning fear, which is not allayed until we have crept out and gone away, if then. Some birds, particularly of the smaller kinds, are possessed of shorter memories, or can persuade themselves that they were mistaken in what they saw, and ere long cautiously return, but these are few in number.

Fortunately it will nearly always suffice to deceive them if two people approach the hide, one entering it and, after he has been safely fastened up, the other ostentatiously departing. The vast majority of birds are thus completely deceived, and if they have previously abandoned their fear of, and grown accustomed to, the structure of the hide, will readily return under the impression that it is empty. There are a few, however, which seem to be able to discriminate between the arrival of two and the departure of one. I remember an old Carrion-Crow which certainly only too fully appreciated this difference, though she could not go further and with certainty tell two from three. To approach a nest each time three strong is rather a tax on one's friends or pocket. An equally good

plan is for two to approach it; one enters the hide and remains there, the other, having a long overcoat, departs, holding the coat out at arm's length, thus giving the idea of a second person! Incidentally it may be said that before the friend's departure everything should be put in readiness for the first exposure, so that after he has gone there may be no cause for movement or noise. As he leaves the hide he should see to the surroundings of the lens, and nip off any leaves or twigs which might possibly blow in front of it, and should also look to the hiding-tent itself, making sure that it is fairly evenly taut throughout, so that there may be no slack parts to flap in the wind.

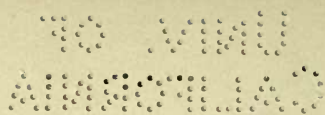
Natural Hides.

As will have already been gathered, the hide is of the utmost importance. It must be impenetrable to sight and as small and unobtrusive as possible, and if, instead of being improvised on the spot, it is a manufactured fitment carried for the purpose, it should further be light, compact, and easily erected. I most certainly do not recommend that it should take a special and imitative form of a tree, a domestic animal or any other like object. Such may be useful on rare occasions, but by no means essential in any case, and as each of these imitations is confined in its



A HIDING-TENT SCREENED BY REEDS, USED FOR PHOTOGRAPHING SPOONBILLS.

The Author is seen peeping through the back of the Hide.



sphere of usefulness to one class of subject, the bulk and cost rule them quite out of the question.

A Hide of Branches.

Sometimes the hide may be furnished by an object already standing near the nest, as a hollow tree, a building or a boat, but such conveniences are so seldom found in the right place, and when present so naturally suggest themselves, that they need not be considered further here. More frequently a hide may be fashioned with branches, sods or rocks, or any other natural materials at hand. When about to make a hiding-place in the fields, one's thoughts instinctively turn to leafy branches as the natural wherewithal with which to build, but as a matter of fact for all work at close-quarters, a more unsuitable material could hardly be conceived. Its great and vital drawback is its lack of density. Layer after layer of branches may be piled on the screen, and still on every side there remain ugly chinks through which the bird can detect our slightest movement. Only those who have made use of such a leafy hide for work at close-quarters will realise how much time and patience is required to block up all the little holes, and how bulky is the finished article. Of course, for the comparatively slight screen needed when working the camera from a distance by a line,

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these hiding-places made of branches are admirable, but it is when working directly at close-quarters that they fail. They have, too, a subtle and disastrous habit of withering up under a few hours' burning sun, and a screen that was but just now reasonably opaque soon becomes a mere lattice-work of branches as the leaves shrivel up.

A Hide of Rock or Turf.

Such solid things as turf or rocks can be built into most excellent hides. Though the labour involved in their erection is considerable, they have the advantage of contrasting but little with their surroundings, and if slowly brought together cause the birds a minimum of alarm. After one has built a screen or two with rocks, one will readily accord the "dry-waller" of the North Country dales a liberal credit for his craft. The mischevious way in which the stones obey the call of gravity is most exasperating. We try three different stones, each on all its faces, for the one place, and still not one will "bed" aright. There is a mystery in this art, but we shall find great help if we use in layers at intervals, earth or thin turf in which to set the stones. This gives rigidity, a novel characteristic in amateur dry-walling, and, moreover, in many cases it tends to make the structure look less strange and staring. The walls may be slightly corbelled inwards on every side, and then spanned

with sticks, on which, in turn, a covering of sods is laid, making all quite secure and leaving only an aperture for the lens, a few peepholes, and a small hole in the back to creep through.

It saves much work if the floor of such a hide is sunk a foot or eighteen inches below the ground-level, and the excavated earth piled round the edge of the hole, where it goes some way towards forming the wall. The total inside height need not exceed three to three-and-a-half feet, and if the floor is excavated a foot or eighteen inches, the height above ground is nearly halved and the thing thereby rendered much less conspicuous. Having suggested the sinking of the floor, it will only be kind to mention the sequel should the site be damp or the weather rainy. Then the excavation becomes a receptacle for surface-drainage, and some morning it will be found ankle-deep in water. Now, though this may be no serious inconvenience in warm weather, yet when a chill wind is blowing in through the crevices this impromptu foot-bath is far from pleasant, more especially if the smallness of the interior necessitates more than the feet participating in the bath.

The Hiding Tent.

Although such screens constructed of materials to suit the site are often very useful, yet it would be

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safe to say that in almost every case where a screen can be used, the best and most easily provided kind is a portable tent in which to hide ; this being made of cloth, it is at once completely sight-proof, and within the limit of its dimensions, should be adaptable to any shape. In its simplest form, it may be nothing more than a dark-coloured sheet, some ten to twelve feet square. This can be fashioned into a tent by throwing it over a framework of poles or branches, and it will answer admirably if carefully arranged on a neat and substantial support.

The labour, however, of making a more finished hiding-tent is so light, and the tent when completed such a manifest convenience, that no one really intent upon the work should be content with the make-shift of a sheet. The easiest way to set about its manufacture is to procure a piece of fabric—say art-serge or coarse dress-linen—(there is a fine range of colours in the first material) about twelve feet or more in length and six feet wide. Some of these goods are sold up to this width (72 inches) and so save a joining—a consideration to a man. Along one of the twelve-foot edges make a broad slot or hem, and, having in this inserted a tape, run the cloth together towards the middle of the tape, and then, by drawing the two ends together, one edge of the

cloth is brought into a tight little bunch like the top of a sponge-bag. It only remains to put hooks and eyes, or preferably pairs of tapes, on the edges of the two six-foot sides, to fasten them together and complete the tent. There is nothing here that a mere man may not accomplish, but if there be more deft fingers to wield the needle and the scissors, a more trim and shapely tent may be attempted. To describe the nature and uses of the "hide" to many ladies would be nearly as great an undertaking as its manufacture, but if we say that it is like a magnified egg-cosy or a work-bag without a bottom, and give its size as twelve feet round and six feet high, they will do the thing, extracting gussets, etc., and giving it a natural bell-shaped top in less time than we of the clumsy-fingered sex would take to complete our simple hem. The careful shaping of the top is of more than fanciful importance; it tends to prevent flapping about in a wind.

Opposite the entrance there should be a hole for the lens to poke through, and as the height of the camera from the ground will alter considerably on different occasions, it is best for the hole to take the form of a vertical slit, some twelve or eighteen inches long, then, at whatever height the lens happens to be, the slit can be fastened tightly round it, either with a rubber band or

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string, and the remainder of the opening pinned together in a few moments. It is quite unnecessary to make any peep-holes, for they will generally be found not to be in exactly the right place, and the small blade of a pen-knife will do all that is needed in this direction, just where it is most convenient. Later on, when the tent has seen some service, the front and sides will be plentifully riddled with little holes and slits.

The material of which the tent is made is of less importance than the colour, which should be dark-brown, green, or grey ; but, above all, it must be a *fast* colour. I well remember once the exclamations of astonishment and mirth from some rustics whom I passed when returning at the end of one pouring wet day spent in a tent. On arriving home I discovered the cause of their mirth, for on confronting a mirror I found that face, collar, and shirt were streaked a vivid green by the drippings from the cloth, and though the dye was far from *fast* in its appointed place, yet it appeared to have gained tenacity by the change of situation, and henceforth defied all laundry skill to remove it.

The Framework of the Tent.

As to the framework to support the cover, an impromptu one may often be made from branches on the site, and its shape and size will, of course,

vary with circumstances. If it is a made fitment, carried for the purpose, this point cannot be too strongly borne in mind at the time of its design. An old umbrella top, with the point and nearly all the stick cut away, and supported by three or four stout sticks, makes a simple and very portable contrivance, but it is not very adaptable to varying needs, and sooner or later will wholly fail to fit into the requirements of a particular site, and, therefore, not greatly to be recommended. I have tried many elaborate contrivances, but found none so generally serviceable as the simplest—a few lengths of stout cane. These can be thrust into the ground so as to form a framework of any size or shape, and when tied together at the top are very firm, an important matter in windy weather. If canes of a good length are procured at first, there need be no scruples about cutting pieces off them afterwards as need arises, their initial cost being only a few pence.

Concealing the Tent.

A point, the significance of which is liable to be overlooked, is, that while the tent completely hides the operator, it has, in turn, itself to be concealed, otherwise it is nearly as alarming to the bird as the camera standing naked and alone. To aid in this concealment, it is handy to have little

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bits of tape or string sewn on all over the outside, like reefing strings on a sail. By means of these, bunches of grass, reeds, or whatever suits the site, can be fastened on, and by propping similar material against its sides on the ground the whole can be made to blend with the surroundings. It is important to avoid a sharp line round the bottom, and bunches of grass should be tied to the sides of the tent, to hide the junction with the ground. In applying these little bundles of covering, it is as well to begin at the top and work downwards, and to be careful not to make the thing too bulky; the very least that will make it harmonious with its surroundings is the best.

Many birds are naturally unsuspicious: if they do not see quite a quantity of the cloth it causes them very little or no alarm, so long as its surface is well diversified with objects familiar to them; this especially refers to small hedgerow and woodland birds. It is largely a matter of what their instinct teaches them to fear. Through the long ages their enemies have been for the most part small and swift of action, and so, though they at first regard with mistrust any object strange to them, irrespective of its size, if it be large and remain quite motionless, it soon becomes familiar to them, and they cease to fear it. Not so the large ground-nesting birds; ages of sad experience have taught

them to regard every thicket as a lurking place of enemies, and every strange object as a deadly foe. It would probably not be far from the truth if we were to say that in general, a bird's mistrust of man varies directly as its bulk; the smaller the bird, the less its fear. And this would be rendered still more correct by adding the rider, that for the purposes of such comparison the bulk of ground-building birds should be nearly doubled.

It will often happen that, although the birds have ceased to fear the tent itself, yet each time the photographer goes inside with his camera, they seem to experience a renewed fit of misgiving or alarm. One might think that they knew of one's presence within, or, at least, that they were not satisfied with the solitary departure of one's assistant; probably, however, it is the lens that is troubling them. Repeatedly, I have seen a bird come quietly back on to its nest, taking little or no notice of the tent, which had been standing in its place for days, when suddenly it has for the first time caught sight of the staring eye of the camera looking down at it, and with a startled cry it has taken wing. Of course it cannot see much, if anything, of the camera that is within, but the lens must protrude from the tent side, and its eye-like form causes birds much alarm. A shining black convex thing set in a rim, in nature

spells but one thing—an eye, and an eye staring out of a thicket, means but one other—a lurking enemy ; small wonder, then, at the precipitation of our sitters on finding such an apparition within a few feet of their home. Knowing beforehand their dislike to the lens, it is a good plan to set up the camera, or a dummy substitute, the evening before, in the place it is finally to occupy ; and then in the morning, when one comes to work, the birds will probably have ceased to regard it with any considerable degree of fear. Night is the friend of the bird-photographer in many ways. As long as it is day a bird may refuse to return, but as darkness comes on it dictates either her return or the desertion of her treasures, and happily she generally decides in favour of the former course. Whether it is simply the urgency of night that brings them back, or whether it is that, in the failing light the *THING*, being less clearly seen, is to them less to be feared, is a point I have never been able to make up my mind upon ; but the fact, that with night they do come back, is one well worth trading upon. Time after time I have left a bird standing disconsolately near its nest in the gathering gloom, unable to muster up courage to return, while in the morning I have come back to find her contentedly sitting, almost oblivious of the camera's once-dreaded presence.

Dummy Camera.

Of course, to get birds accustomed to the whole thing, there is nothing quite so good as the gradual approach of the camera in position in the tent, as one moves the latter up, but this means that the instrument will be out of service for a day or two, unless one fixes up a rough imitation or dummy to take its place. An old broken camera—quite beyond photographic use—may sometimes be purchased for a shilling or two, and is ideal for this purpose, but, failing this, it is easy to manufacture something having a resemblance to a camera. An empty cigar-box with a round tin lid fastened on one end to suggest the lens, and a few large brass drugget pins to represent the camera screws, is ample enough means to deceive most birds. At one time we represented the bellows by streaks of black paint on the sides and top of the box, and added other little fitments, but experience served to show this to be generally unnecessary. All that is required is an object quite strange to them and bearing some rough resemblance to a camera; they will then either take the rest for granted or on rare occasions will be minutely critical, and then our best imitation would be unavailing.

Focussing for the Anticipated Sitter.

The correct adjustment of the focus is, of course, a most important matter, and is not so simple

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as it at first appears. One has to focus for an imaginary object whose position has to be guessed, and when working at close-quarters a very slight misjudgment will throw part of the bird out of the plane of sharp definition. I usually put a cap over the eggs, making it in size and position tally as nearly as possible with the brooding bird, and by focussing carefully for that am seldom disappointed. For small birds a visiting card is useful in the same way: any printed matter is an excellent guide for critical focussing. In a poor light one cannot hope to stop-down sufficiently to get both the near and far sides of a large bird at close quarters sharply defined, but if one makes sure that the definition of the nearest parts is critical, a slight diffusion in others will hardly be noticed. Thus eggs are not an ideal guide for the focus, but if they are employed, the near ones rather than the complete clutch should be focussed.

A Comfortable Position Necessary.

All this, of course, is done after your assistant has fastened you up. Before he leaves, however, there is another matter to be attended to—your own position. If there is a choice it must be made with some care and forethought, for once you are alone there is to be no further movement of any kind until after the bird's return, perhaps many hours



A CURLEW STEPPING ASTRIDE OF HER EGGS.



later. Often, owing to the meagreness of the hide there will only be one position possible, and then it is worth while making this as comfortable as we can. When first assumed nearly any position seems fairly comfortable, and it is only after a time that an ill-chosen one makes itself felt, and no one who has not experienced it can believe how much pain can accrue from cramped and strained muscles. At times the tent will be touching one's body at several points, and then the slightest movement will set the whole thing shaking—enough to scare a bird away for hours, and even when the interior is more roomy one cannot be too careful, and if there is height enough to permit of a low camp-stool it is well worth trying. There is one general rule that may be of service in the selection of a suitable position, and it may be expressed most shortly by saying: "Never assume a position in which the angle made by the body, and a line joining the bottom of the back with the feet, is less than a right angle"; but by far the best advice in this direction is to keep the mind off one's aching limbs and on the bird whose return one is ever momentarily anticipating, for once begin to consider your discomforts, and the pain increases ten-fold.

The Bird's Return.

And now we will suppose that all preliminaries have been completed, and the assistant has

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departed, leaving us anxiously awaiting the bird's return. Probably our first intimation of its coming will be its appearance at some distance, whence it eyes the hide distrustfully, and approaches gradually stage by stage as it gains confidence, or it may alight on the nest-edge and fold its wings hesitatingly, as if uncertain whether to stop or go. In any case there is great temptation to seize the much longed-for opportunity and to snap the bird the moment it appears, but this is a short-sighted policy, and though of course, we thereby make certain of one exposure, it too often happens that the slight click of the shutter scares the bird, for she has only just mustered up courage sufficient to return when all is quiet, and is, therefore, intently on the alert, and still full of misgivings, and at the first sound darts off reassured of the presence of a lurking foe within the lump. It is better to give the bird ample time to settle down and if, through long acquaintance with the tent, she has really and completely ceased to fear everything therewith connected, it is truly astonishing, in fact almost incredible, what she will tolerate without exhibiting a sign of agitation or alarm. The recounting of such incidents savours of a piscatory narrative, but may, nevertheless, be the plain ungarnished truth.

The Story of a Lapwing.

Take, for example, a well-known bird like the Lapwing, whose wary nature and ever-watchful eye are common knowledge to all dwellers in the country. Ordinarily she is up and gone from her eggs before one has climbed the railings bordering the field, and yet the writer has lain concealed in a "hide" within four feet of one, and from that distance has endeavoured, without success, to drive the bird from her nest by shouting !

When first the tent was pitched it stood some sixty yards away, but gradually it was moved up until only some fifteen feet separated it from the eggs. Here photography was begun, but the Lapwing at this time was very nervous, starting violently and often leaving the nest on the slightest sound, while the release of the shutter was sufficient to send her wheeling headlong from her eggs, too scared to run before rising. The acuteness of her hearing was truly astonishing ; the faint click of the retaining catch of the dark-slide being quite sufficient to make her start suddenly. But day by day, though the tent was steadily approaching, her fears of it as consistently decreased, and when at last it stood some four feet from her home she no longer regarded it with suspicion. I could then set the shutter, change the slide, and

make an exposure with impunity, and when at length I was satisfied with the studies of her sitting on the nest and was wishful that she should go, I purposely made a noise by tapping on the ground-glass. It was a sound new to her, and she listened intently, enquiringly in fact, but without a suggestion of alarm. I tapped louder and yet more loudly, but her interest in the sound was waning and she dozed. I ran my finger nail along the bellows of the camera, making a rattling noise; this attracted her for a moment and she put her head on one side to listen, but that was all and soon she dozed again. I snapped a metal match-box, and, in short, made all manner of noises, but to no purpose, for after a time she did not even deign to notice them, and yet this was the same bird which a few days before had started violently if I attempted to alter the position of one leg although then more than three times as far away.

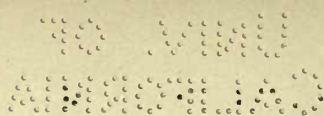
Determined that she should go, as I wished for pictures of her returning to the nest and settling down upon the eggs, I spoke, and at that she turned her head enquiringly. I spoke louder and more sharply, but again the novelty of the sound was going and her eye relaxed. At last, hardly realizing what I did, I shouted loudly, and peering through a peep-hole in the tent, to my astonishment could see her contentedly sitting on



A NEAR STUDY OF A LAPWING.



A MORE DISTANT VIEW OF THE SAME BIRD.



her eggs supremely indifferent to the noise. So absolutely assured had she become of the harmless nature of the tent, that no sound from within could now cause her even momentary alarm ; interest she had exhibited in some of my vocal efforts but not fear. It then occurred to me to show a sign of movement from within, and I rapped the inside of the tent next to her, making the whole thing shake. Instantly she was as if electrified and almost before I realized it, was fifty yards away, wheeling, swooping, and sounding the alarm.

Movement more Alarming than Noise.

We need not dwell longer on this case, an outline is sufficient, and from it many useful deductions may be drawn, and incidentally it shows the possibilities of the hiding-tent. One of the most practically useful points to notice, is how much more alarming to a bird is a slight movement than a strange sound. It is hardly necessary to point out that such cases as this are very rare, and, when occurring, are only brought about by the observance of the utmost caution and patience in the early stages, and further, even with this observance, many birds would directly forsake their nests were such measures attempted. Moreover, such a close approach as four feet is not only quite unnecessary but really detrimental to the best

work. It is a natural impulse to try to get as close as possible, but when working at such short range, even with some stopping-down, one can generally only get a portion of the bird in focus at a time, and a turn of the head is then quite sufficient to throw it right out of focus. At the best, the result, though interesting, is by no means so pleasing or instructive as if it had been taken from three times the distance. This will be appreciated on reference to the two figures in the plate facing page 84. In one, taken at very short range, only the head and breast are represented, and of the rest of the bird there is no indication, while in the other a general impression of the bird is conveyed. Twelve to sixteen feet is a more reasonable, and generally useful, distance at which to work on a bird of moderate size; from here one can get a suggestion at least of the nature of the habitat and so give the picture a double interest, but the actual distance in any particular case will depend upon many things—the temperament of the subject, its size, the nature of the site, the time at our disposal, and lastly, upon the focal length of the lens employed.

CHAPTER VII.

PHOTOGRAPHING BY CONCEALMENT AND ARTIFICIAL ATTRACTION.

IN THIS short chapter I wish to call attention to a method, the value and possibilities of which are only just beginning to be appreciated by bird-photographers. In brief, it consists in attracting birds by any means devisable to a given place of our own choosing, on to which the camera has already been brought to bear. In one or other of its various forms it is applicable to a very large variety of species, ranging from the great raptorial birds down to the dainty little Titmice. The attraction which we offer may be temporary, in fact only momentary, or it may be more permanent, lasting a few weeks, as in the case of the occupation of a nesting-box.

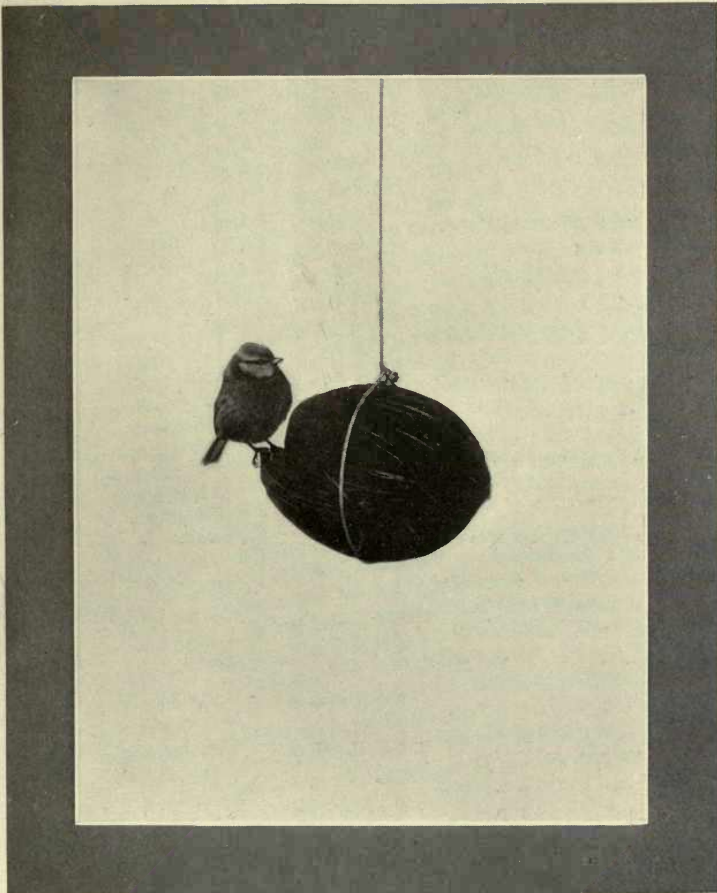
Food as a Lure

The resource which first presents itself when we contemplate enticing a wild creature, is that of attracting it by means of food, and there is no lure so generally useful to our purpose as is this. Few birds are strict dietists, and so it often happens that food placed for the entertainment of

one species, is eaten up by another before the intended banqueter arrives; but this may be avoided, or, at least, the likelihood of its happening greatly lessened, by carefully considering the form and place in which we offer it. Some birds will come to a hanging bait while others are quite nonplussed by it; some will enter a hole or pass a fence of cotton which turns others back; while only certain birds will notice food if it be placed twenty feet or more up in a tree; so we may eliminate at least a few of the undesirables if we know the habits of the birds we have to deal with.

If one is not already familiar with the natural food of any species, its nature can generally be found in works on ornithology, but not infrequently this will be found to be quite unobtainable in quantities enough to form an attractive bait, and an artificial food as appetizing to their palate as we can devise must be substituted. It will at once be inferred that so far as the mere catering goes, most fish, flesh, and seed-eating birds should be easy to attract, and that our greatest difficulty in this direction will be with insect feeders, and so, generally, will it prove in practice. Fortunately many of these latter are only too glad during the winter months to feed on such dainties as shredded fat or suet. This can conveniently be given in a

THE
BIRDS
OF
THE
NORTH
AMERICAN
CONTINENT
AND
ADJACENT
ISLANDS
AND
WATERWAYS
BY
J. A. ALCOCK
AND
J. A. ALCOCK
AND
J. A. ALCOCK



BLUE TIT ON NUT.



small string bag of very fine mesh, out of which the birds pick it with eagerness, or it may be grated and sprinkled over a piece of rough bark or one large piece may simply be pegged down. In any case the point to be ensured is that the food cannot be dragged away out of the field of our lens, as happens when scraps are put down. Mealworms, too, form a bait almost irresistible to some birds, and there are many other dainties which might be mentioned ; but as there is a little book devoted solely to bird-attraction, it would be superfluous for me to say more in this direction.

The camera will not require to be hidden with anything like the same care and efficiency as is necessary when working on a bird at its nesting-haunt. The great thing is to have it standing in its final position before the birds first come upon the scene and find the food, for they will then, unless it is very conspicuous, take it to be one of the natural objects of the site and pay no attention to it whatever, and I have more than once known them perch on a camera which was but scantily hidden. The lens should be as much screened as possible, for that may cause a bird alarm at any time.

Under-Exposure.

As much of this work will be done during the winter months, one has to use the experience

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gained in the summer with due caution, for even on a bright winter's day the actinic value of the light is small, and under-exposure is too often evident in work in this direction. A very definite and easily recognizable centre of sharp focus, so that one can instantly see when the bird is in the anticipated position, and a large working aperture in the lens are, therefore, much to be preferred to a more extensive field of focus and the small stop by it dictated.

I would specially recommend this branch of bird-work, for besides embracing not a little of the pleasure and excitement of trapping, it has the peculiar merit of making it possible to secure pictures of birds which do not breed within our islands, visiting us only during the winter months, and our sphere of action is thereby materially extended.

CHAPTER VIII.

PHOTOGRAPHING BY ROPE-WORK ON THE CLIFF-FACE.

THIS is at once the most exciting and strenuous phase of bird-photography, calling for much agility and endurance, but, if properly conducted, it is not, as usually imagined, the most difficult and dangerous. Its hazards have been grossly enlarged upon for effect, and, no doubt, thrilling narratives have resulted, but frankly, granted suitable men, plant, and methods, we do not consider that this is in itself more dangerous than, say, tree-work, where so much depends upon the strength of an unknown quantity—the branches.

The Source of Danger.

The chief source of danger lies, not in the practice itself, but in the wholly improper manner in which it is, at times, conducted, and its gravest aspect is that an accident, when it does occur, must almost inevitably entail the loss of life.

The unquestionable quality and strength of the rope would seem to be a matter too obvious to

need mention, but, well remembering the nature of the rope we were foolhardy enough to use when beginning, and bearing in mind the number of Alpine accidents due to breaking ropes, a word of advice on this point may not be unnecessary. If, at the time of purchase, it were only fully realized that when working in the great cliffs a broken rope means death, it is more than likely that the article acquired would not err in the direction of insufficient strength, but rather, perhaps, in that of undue weight, which, though not of the same vital importance, is a drawback rigorously to be avoided.

The Ropes.

The ideal rope is the very lightest, compatible with the required strength, and in estimating the necessary strength there are several factors to be taken into consideration. The rope has not simply to support a dead weight of so many stones, nor only the same as a live load ; it must be able to withstand the strain caused by one's body falling through many feet (occasioned by a slip when the rope is slack) and the terrible jerk ensuing when the rope pulls taut ; and further, it must be of such ample strength as to fulfil these requirements after it has been much chafed by the sharp edges of the rocks. A factor of safety of ten to fifteen

is certainly not too high in this case. To be more concrete, our present lowering rope was specially manufactured for us in Newcastle, and is 200 feet in length and of the finest quality Manilla hemp, about half-an-inch thick, or one-and-a-half inches in circumference, its weight being some forty pounds. The lighter rope or hand-line does not require to be more than half this strength: its purpose will be noticed immediately.

The Body-Attachment.

The next most important point is the fastening of the lowering rope to the body of the climber, and in this there is some choice of methods. Certainly the canvas trousers, to which the rope is directly attached, as used by the professional egg-gatherers at Flamborough Head, are the most comfortable, but the appliance is somewhat bulky, and has another disadvantage, to be noted presently. Another plan, excellent in its way, is to make three fixed loops in the end of the rope, one large one to encircle the waist and two lesser ones to go round the thighs, the rope leading away from the junction of these three loops. This has much in its favour: it is light and easily made, the rope being spliced together, and there are no loose parts; but both in this and in the first-mentioned method there is the drawback that the movements

of the climber are restricted, as since the point of support is somewhere near, or posterior to, the centre of gravity, the hand-rope is continually required to ensure a stable position.

Greater freedom of action is afforded by a broad canvas belt passing round the back and under the armpits. It is primitive and almost clumsy in its appearance, but it has many merits. It should be broad and very strong ; our own is made from a piece of a horse's belly-girth and lined inside with thick saddle-felt an inch wider than the belt. This little projection of the padding serves to prevent the edge of the girth from cutting one. As it is not fastened to the body, only encircling it in the manner of a life-belt, one can turn this way or that or completely round at pleasure, and even face with ease directly downwards when horizontal, a position quite impossible with either trouser or tri-loop method. And further, since the point of support is anterior to the centre of gravity, one can always get a stable position with the head uppermost without the use of the hand-line, thus leaving both arms free for camera manipulation, a matter of great importance to the photographer. There are, however, two drawbacks to such a belt, and they had better be mentioned now. Firstly, the whole weight is thrown upon the ribs, and after a time there may be a feeling of oppression for

the strain is very severe, and secondly, as the support is not in the centre, but towards the head, it is sometimes, as when the cliff recedes inwards, a great strain to keep the body horizontal, or, in fact, even to keep the feet in touch with the rock at all, but should one fail to do so (which is inevitable if the cliff is much overhung) one then only assumes a natural and dependent position with the head uppermost, and even in this dangling attitude both arms are free to work the camera.

To keep the hand-line always within reach it is a wise precaution to pass it through a loose belt round the waist, it is then always at hand and can never swing out of reach.

The Crowbar.

But by whatever means the lowering rope is to be fastened to the body, the methods of the actual climbing are the same. The first thing to be done is to decide exactly upon the point at which the descent must be made, and when the object in view is some individual nest as opposed to a colony, one must be precisely above it, for in a smooth cliff-face lateral progression is almost impossible. Here a crowbar, having a flat or enlarged head, is driven into the ground, sloping backwards from the cliff-edge. It should, if possible, be driven in until only three or four inches remain, and to this one end of the lighter, or hand-line, is made fast,

the remainder being thrown over the edge, where-upon it should dangle opposite or close beside the object of the descent. If it does not do this and is hanging plumb, the crowbar must be extracted and its position altered accordingly. At times a boulder lying deeply embedded a little way back from the edge may take the place of the crowbar, but is seldom so satisfactory.

The Descent.

All being in readiness, the climber, having donned the belt, then goes to the cliff-edge, the haulers paying out the lowering rope as he goes, and here, taking hold of the hand-line to steady himself, he steps backwards over the edge, at once assuming a horizontal position in which he continues walking backwards down the cliff. Thrusting oneself thus in a reclining attitude into space seems an unnatural and unsafe proceeding, and one at first instinctively wishes to creep over the edge on all fours hugging the cliff-face all the way down as closely as possible. But the sharp ledges of rock soon work such havoc with skin and clothes, and are so productive of bruises, that ere long one is anxious to keep as far away as possible from the jagged face, touching it only with the feet, and so the right position is naturally assumed.

We do not recommend that the lowering-rope be passed once round the crow-bar, as is sometimes

done. Of course, this reduces the work of the men on top to a minimum during the descent, the friction round the crowbar taking nearly all the weight off their hands; but this does not seem material, for if they are going to have stamina enough to haul the climber up again the descent will in any case be mere child's play, and there is against this plan the serious objection that before the ascent can be commenced the rope must be slackened and unhitched from the crowbar. This necessitates a considerable movement and shuffling on the part of the haulers, and this is a thing rigorously to be prohibited. Once the climb has been commenced they should not alter their position, for in doing so they are likely to dislodge stones, and in any case are less secure. They should choose their first position carefully, kicking, or finding, a good hold for each heel, and stick to it throughout.

The lowering rope should be very carefully uncoiled and laid out on the grass before the descent is commenced, for should it become entangled behind the haulers after the climber has disappeared over the edge, it is very awkward and he is kept dangling in suspense while the rope is put right.

Loose Stones.

Leading down to the brink of most cliffs there is a slope, often of stony earth, and as the climber

goes down this, preparatory to disappearing over the edge, he should scrutinize every inch of his path and try with his foot every doubtful point over which the rope will pass, for it is here, and not in the breaking of the rope, that the commonest source of danger lies. Every loose stone and pebble must be removed, and when the edge has been passed the same caution must be used on the cliff-face, every movable rock or sod being dislodged before it is passed and either dropped beneath, or, if there is cause for silence, placed well to one side of the path of the lowering rope, in which nothing movable can be tolerated. Although an expert climber may appear to attend to these matters very quickly and mechanically, it is probable that the greater is his experience the more careful will he really be in their observance, for it is astonishing how small a pebble will do damage to either the man or the camera after it has fallen say some fifty or sixty feet. Despite the utmost care, small stones will now and then be loosened as the rope is paid out or, more particularly, hauled up, and since one is by the nature of things precisely in the path of their descent, they too often find temporary lodgment against one's person. A stiff, wide-brimmed hat, the crown being well stuffed with grass, affords some shelter against the lesser missiles, but against falling stones of any consider-

able size there is no protection, save only a goodly measure of luck.

Time-Exposures in Rope-Work.

In rope-work a stand-camera is seldom used, as time-exposures are rarely possible when dangling on the cliff-face. But on occasions one is able to give a second or more by resting one tripod-leg on a convenient ledge or in a cranny, and passing the other two through a belt tied round the waist, or, better still, if the ledge is sufficiently long to permit of it, let two legs rest on the rock, only one passing through the belt, as this will give the camera more stability. Of course these remarks do not apply to work done on a broad ledge or terrace large enough to move about upon, but only accessible by means of a rope, for here the stand-camera is invaluable, the subjects, when reached, falling under the head of simple "ground-nests," and the rope only being necessary as a means of access.

On the Cliff-face.

When once the climber is fairly on the cliff-face, many birds begin to lose their fear of him, and as it wanes, curiosity grows in its stead, and they flutter and swoop close past him, turning their heads to prolong their scrutiny, and slowing up in their flight as they pass, thereby offering splendid

opportunities for securing photographs of birds in flight as well as studies of the species themselves. But before work can be done with any reasonable degree of comfort, a firm and stable position must be assumed by bracing oneself against the cliff-face. This can only be done so long as the lowering rope, the outer one in the Plate, is making an appreciable angle with the vertical, and thereby throwing the climber's weight inwards against the cliff. Then, by bracing one leg straight against the rock as a strut, the other being bent and placed higher, as in the picture, a very firm position is at once obtained.

Incidentally the photograph shows the freedom of movement permitted by the belt method, for my body is turned right round to the left and my face buried in the hood of the "reflex" while endeavouring to secure a picture of the Kittiwake, seen flying through the chasm towards me. The hand-rope is hanging free, passing through a belt at the waist, and it may be traced dangling in the wind far below. Above, it is passed over the edge and beneath the hauler, being made fast to a crowbar immediately behind him.

The Ascent.

As to the disputed question of how many men are required on the hauling-rope, this depends to a



DESCENDING A KITTIWAKE-HAUNTED CHASM.



far greater extent on circumstances than has hitherto been allowed. Naturally the depth of the descent and the nature of the cliff are factors, but the most important is undoubtedly the ability and endurance of the climber. If he knows his work, and, when ascending, pulls strongly on the hand-line, walking steadily upwards all the time in the same horizontal position in which he descended, the work of those on top is more than halved. The greatest strain on all is when the cliff recedes or is over-hanging, leaving the climber swinging like a pendulum in mid-air. He can then no longer walk upwards—he cannot even touch the rock—but may still make the work of those on top much lighter, and at a time when his help will be most needed, by pulling himself, hand over hand, up the hand-line; and if the haulers keep up a constant strain on the body-rope, thus carrying part of his weight and taking in the slack as he wins it, the work is not quite so arduous as it sounds. There is no doubt, however, that in theory and in careful practice one man at the top is insufficient, for even should he be fully capable of hauling up the self-aided climber, the work is very strenuous, and he may take cramp, or a hundred-and-one emergencies *may* arise to render him unequal to the task; and, further, there should always be a surplus of hauling power on the top, lest any

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mishap should befall the climber and nullify his aid. So, though we cannot say that we have always practised what we now preach, two men at least should be employed on top.

Friction of the Rope.

It is the friction of the rope upon the cliff-edge that makes the hauling such heavy work, and it may be considerably reduced, as may the wear and tear of the rope itself, by passing it through a few feet of leather tubing at the point where most friction takes place. This tube, which should be about two inches greater in diameter than the rope, will require fastening down with a peg by the climber as he goes down, or it may not stay in its place when the rope is working through it.

An Inexperienced Climber.

As illustrative of the effect the climber has on the work, an incident which occurred some years ago on the Yorkshire coast may be of interest. We had been working easily for some time, when one of the haulers, of whom there were two, expressed a desire to go down in order to experience the work. Accordingly, he put on the belt, and we lowered him in his own fashion to a broad ledge some thirty feet below with ease—to ourselves, if not to him. But when the signal came to pull up

we hauled and struggled in vain : we simply could not move him, nor could he be persuaded to help us by adopting the horizontal position. We hailed a farm servant from a neighbouring field and tried again, but the three were no more successful than the two had been, so bidding him sit quietly on the ledge we went in search of more power, and shortly returned with two brawny fishermen. We were then able to pull him slowly up, and are not likely to forget his appearance on reaching the top. The cliff was wet and dirty, and it at once became obvious that much of the friction and resistance had been caused by his person coming in contact with the rocks, and not in every case had his clothes or skin proved equal to the encounter.

Signals.

A short code of simple signals is indispensable, for it is impossible to let those on top know one's requirements by shouting, after some twenty or thirty feet have been descended. The rock-face acts as a mighty sounding-board, and throws one's voice outwards and away from those whom one wishes it to reach. Visual signals are, when workable, very handy, but they require another man to act as a medium, and from some prominent point to ascertain the climber's wishes and communicate them to the haulers, and not always can such a

commanding point be found. A plan we have found fairly satisfactory is to throw over the cliff a fishing-line as well as the hand-line, but the former instead of being made fast to a crowbar, is tied round the arm of one of the haulers; the climber then communicates his wish by a series of jerks on the line—one pull, stop; two, lower away; three, haul up, and so on.

The camera should, whenever possible, be taken down the cliff, strapped to the back, and not lowered afterwards; nothing is more likely to loosen stones than to send a camera-case bumping and sliding down the cliff.

CHAPTER IX.

THE PHOTOGRAPHY OF BIRDS IN FLIGHT.

SINCE flight is at once the most interesting and remarkable property of a bird, it is only natural that bird-lovers should be anxious to obtain pictures showing their favourite creatures engaged in this characteristic and wonderful art. Others, too, who pay no heed to birds as such, cannot fail to take interest in and admire the perfection of their performance in the art that man is now so hardly and dearly striving to acquire. But lest early failure should lead to abandonment, it may be well to point out that this is undeniably difficult work ; in fact, to get pictures of excellence is more difficult in this than in any other branch of the art. Any rapidly and irregularly moving object, such as a galloping horse or a hunting dog, taxes our adroitness, but these subjects, though they may turn from side to side and follow an erratic course, yet must of necessity move always in one plane,

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whereas a bird can zig-zag horizontally or up and down at will, and so the difficulty is immeasurably increased.

The Exposure.

Nor is this all. Were birds large creatures like a horse, the photography of them in flight would be vastly easier than it is, since then we could secure a satisfactory picture from a distance many times as great as is now possible; and this, though a purely photographic matter, has such direct bearing on the subject, that some notice must be taken of it. There is a rule which says that the exposures for moving objects must vary directly with their distances from the camera, other factors remaining constant, i.e., the duration of the exposure decreases as the distance is reduced. To apply this to our own case. Suppose that the right exposure for a certain bird flying steadily along at a distance of forty yards from the camera is $1/200$ th part of a second, then to secure a picture of the same bird from twenty yards the shutter would require to be set at $1/400$ th part of a second, while at a distance of five yards the exposure would require to be $1/1600$ th part of a second: a speed rarely reached even with the focal-plane shutter. Thus, while it may be easy to secure a picture of a distant flying bird, a near study of it

is a very different matter, and there are many other factors all tending to accentuate the difficulty.

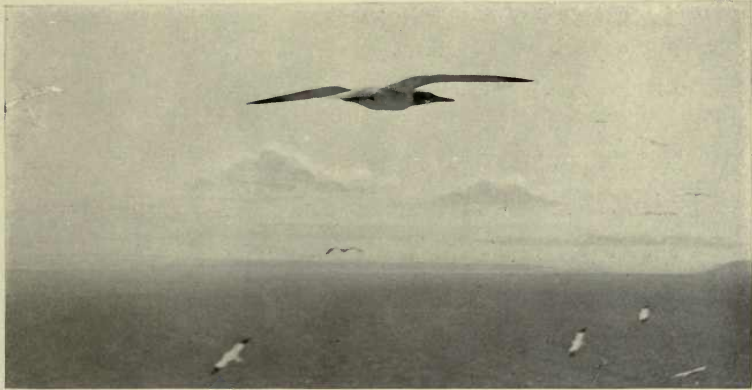
Much of this work is done in the neighbourhood of sea-cliffs, as the habits of the birds frequenting them are especially favourable, and the light is there very strong: in fact, there is at times a surplus of light over and above what is absolutely necessary, even after allowing for the great speed at which the shutter has to work. That is to say, if our judgment decides that $1/250$ th part of a second is a legitimate speed at which to attempt a certain piece of work so far as movement is concerned, the actinic condition of the light may be such that the ultra-rapid plate in use would be by this fully or even over exposed. When this occurs there are two ways of utilizing this very desirable surplus of light. On the one hand the lens may be stopped-down, thereby increasing the depth of focus—a thing of much value in this work—or on the other, the speed of the shutter may be increased to try to avoid movement in the image. For several reasons the latter is to be preferred, for by increasing the shutter's speed and leaving the lens at or near full aperture, more light is thrown up on to the focussing screen: and this aids us much in instantly determining whether or not the image is sharp—and the grasping of this as the bird sweeps by is one of the chief difficulties in the work. On

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the ground-glass we see a bird coming towards us. At first, though we know the actual pace is great, the image moves slowly, and we are easily able to keep it sharply focussed. But all at once it looms suddenly larger, and almost before we realize it, it has passed from our field of view.

Focussing the Bird.

The more closely a bird approaches the more pronounced is this effect. Time after time the same thing may be repeated, and as often leaves us fumbling with the screws as the bird sweeps off the ground-glass in the form of a great hazy outline. There simply is not time to rack the camera out when once the image has begun to loom up large, and much practice has taught me that it is better not to attempt to do so, but instead to rack the camera out beforehand, allowing the distantly advancing bird to be quite out of focus. Gradually as it comes nearer the definition will improve until all at once, for a brief moment, it is sharply focussed and we press the lever. At times a little racking in and out is convenient so as to locate the presence of an approaching bird, but the essence of the thing is neither to do nor have thought of racking at the moment of taking the photograph. Of course, this suggestion not to try to follow the bird with the focus, only applies when attempting near



GANNET SWEEPING BY ON FIXED PINIONS.



GANNET COMING ROUND A CORNER.

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studies or, to put it more definitely, when the bird will be represented about $1/70$ th or more of its life-size.

'Movement' in the Image.

Exactly what speed is required for a definite case will much depend on the nature of the result desired and the purpose for which it is intended. If we say that no photograph of a moving object has ever yet been taken which did not possess the blemish known as "movement," there may be a host of workers up in arms against us, but unfortunately such an outcry would not affect the truth of the statement. The theory of it is rather important, as it directly touches on all instantaneous work. Suppose we took a photograph of some uniformly moving object, a revolving wheel, for example, and having given an exposure of $1/50$ th of a second, found the result was blurred. We then tried a $1/150$ th of a second, but found there was still a trace of "movement" in the spokes near the circumference, and the next plate was given $1/300$ th of a second. Now the image was quite sharp, and one might therefore feel inclined to say that $1/300$ th was the correct exposure for this subject; but if the picture were to be enlarged the blemish would at once re-appear. If the movement in the first case amounted to x part of an inch, then in the last it would be $1/6x$ of an inch, and no matter how

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much we decreased the exposure there would always be a fraction of x left. Thus, since we cannot really eliminate the "movement," the question is how much can we permit for any given purpose. And as a rough guide it may be said that for contact printing and for observation with the naked eye, a movement of about 1/100th part of an inch is permissible.

Although it is really more helpful to explain the principles influencing the duration of high-speed exposures than to attempt to give a table of absolute speeds, yet I am so often pressed to give the latter that I have drafted out a rough suggestive outline of the uses of a few different exposures, and hope they may at least afford the beginner a starting-point from which to experiment profitably and gain experience.

A Suggestive Speed-Table.

1/150th part of a second.—This may be found fast enough for work on flocks of Gulls, and other birds of slow wing-beat, flying in the distance; for near studies of birds walking and otherwise slowly moving, and for photographing stationary objects when the operator is swinging on a rope.

1/250th part of a second.—At this speed one may begin to attempt the portrayal of individual birds in flight, so long only as they are flying either to-

wards or from the camera and not across the plane of focus ; they must still be at a considerable distance, being represented to a scale not greater than 1/100th of life size. Auks, and other birds whose wings beat rapidly, may be attempted at a distance, as may near studies of birds in moderately rapid action, etc.

1/500th part of a second.—About this speed we may attempt near studies of birds flying leisurely with slowly beating wings, as well as chicks and small birds represented to a large scale while in rapid motion, and near studies generally of birds in energetic action (but regarding the latter see below).

1/900th part of a second.—Near studies of birds flying across the field of view and in rapid flight generally, and pictures of individual auks and the like will require about this exposure.

1/1200th part of a second.—This may be taken as the highest speed at which ordinary focal-plane shutters work, and it is not often that the light will permit of much greater brevity in the exposure. We may therefore say that this is the speed to be allotted to our most trying subjects—near studies of birds with rapid wing-beat, and to the closest studies of flight in general. But even when working at this speed we have known a bird's wings to be represented

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by a mere blur, and also, as indicative of the impossibility of formulating a definite speed-table, we may say that in a picture of a baby Peewit running close past the camera, and taken at $1/800$ th of a second, the legs were so moved as hardly to be represented at all !

CHAPTER X.

BIRD-PHOTOGRAPHY IN COLOUR AND IN CINEMATOGRAPHY.

THERE is little doubt that in the future colour-photography will be the standard medium for the portrayal of things in general, and especially of such subjects as birds and other natural history objects where the colouring is of such vital importance. At present, however, the process is in its infancy, and, owing to its imperfections and to the many difficulties of operation, little has been done. Nevertheless, enough has already been accomplished to prove its practicability, and in careful hands some most charming results have been produced. Of course, there are several forms of colour-photography, differing much in their principles and working, but the following remarks refer especially to the "Autochrome" process, as this is probably more generally known and followed than any other. The "three-colour" methods are quite unsuited to our purpose.

The greatest drawback to colour-work is the impossibility of transferring and duplicating the image on paper. At present one must be content

with transparencies, but these, if the exposure has been correct, are of such astonishing beauty as to be doubly worth the trouble expended on them.

So far as concerns the field-manipulations, all that has been said before applies now with equal or even greater force. A hiding-tent is indispensable, and it will have to be rather larger than that generally in use, in order to allow of some little necessary movement without the tent being shaken. There should also be a little window or aperture at the back where, out of sight of the bird, we may from time to time test the light. The entrance slit may serve this purpose if it is not too low, but a small hole towards the top is to be preferred. It is necessary to keep testing the light as its actinic value often changes considerably from hour to hour, and even more rapidly on windy days with much moving cloud overhead; and a correct exposure is most essential. To help us to gauge the value of the light, an actinometer is indispensable. Those meters which employ sensitive paper are the most satisfactory, but the ribbons or discs in them must not be allowed to get stale, and it is better to change them about every two months in summer, whether they are exhausted or not, than to run any risk of working with stale paper.

The special difficulty in taking bird-autochromes lies in the extreme slowness of the plates and the

consequent length of the exposures necessary, even at a large aperture. As to the estimation of the exposure full instructions are given thereon with the plates and the actinometer, but a very handy method was suggested to me by Dr. F. Penrose, to whom I am indebted for much valuable advice on colour-work, and is as follows: When using such an exposure-meter as Watkins' Standard Actinometer, the duration of the exposure at $f8$ for near objects, such as sitting birds, will be the same as that taken by the sensitive paper to darken to the proper tint. This saves working out, and tells us at once if the light is strong enough reasonably to attempt a certain piece of work. For example, suppose that the sensitive paper took $3\frac{1}{2}$ seconds to darken to the proper tint, and the depth of focus required necessitated stopping down to $f11$, then the working exposure would be seven seconds—a long time for most birds to remain absolutely still. Often, at the opening click of the shutter, the bird gives a little start, turning this way and that enquiringly, trying to discover the source of noise, and thus hopelessly spoiling the negative. To lessen the risk of this it is well to allow a bird ample time to settle down after her return to the nest, and when she is quite at her ease, to make a few blank exposures, opening and closing the shutter to get her thoroughly

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accustomed to any slight sounds it may make, without, of course, inserting a plate ; then, when she has really ceased to notice the click, the first exposure may be attempted. I have already emphasized the necessity of a quiet-working shutter, and here, when short-time exposures have to be given its silence is of even more importance, and we would recommend anyone taking up this work to consider this matter very carefully before purchasing.

Cinematography.

Although cinematographic work is hardly within the scope of the amateur, since the films produced by it are of little, if any, service to him, yet the results that are obtained are so startling and of such pronounced interest, that in a book on bird-photography some mention at least must be made of it.

Most people have a rough idea of the general principles of cinematography, which may be described as the taking of a great number of little photographs so rapidly one after the other, that each movement in the object is represented by a series of pictures anatomizing the actions, and these when viewed in rapid succession give a truly astonishing representation of the living action. But to many it is a mystery how such pictures can be obtained of wild, shy birds. Apart

from the mechanical and manipulative difficulties of the process, there is ever present the trouble of the bird's aversion to the rattling noise made by the wheels and shutter in rapid motion ; but on this score at least the work is not quite so difficult as might be anticipated. On the one hand the noise of the instrument may be somewhat reduced, or it may at least be muffled, while on the other, by great care and patience, some birds may be induced not to fear the click and rattle of even the most noisy machine. I have already indicated (page 83) the extraordinary amount of confidence that may be inspired in a bird, and once this is done, as in the case cited, there is really no difficulty in the work peculiar to the subject—there are only such as are natural to the process, and these unfortunately are not few. But, of course, one does not find a bird “ready made” in the trustful state there described ; her fear has to be allayed by days of careful working. But such a case serves to show the possibility of the work without the aid of a specially silent instrument.

A roomy tent is necessary, for we have to be able to move freely and to turn a handle (unless the apparatus is driven mechanically) without fear of touching the sides with our arms and causing the tent to shake. As absolute rigidity is imperative, a very massive and widespread tripod is

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used. The legs cannot always be completely covered with the tent, and when this is the case the cloth may be slit up from the bottom and the legs protruded and covered with vegetation.

It is a good plan to make a "musical-box," designed to produce a similar sound to that made by the camera when working. A small cigar-box with a little Z-shaped clock-key set in one side, so as to turn a bar passing through the box, can be made to answer perfectly. To the revolving bar, which should be square, little bits of hard wood are fastened, preferably by string passed through holes in both. As the bar rotates these slips of wood are made to strike against pieces of wood or leather, and make a whirring sound, the volume and nature of which can be toned down by fastening layers of cloth or wash-leather to the striking surfaces until a suitable sound is produced. This little contrivance is taken into the tent, the cinematograph camera is put in readiness and focussed on the nest, and as soon as the bird has got comfortably and contentedly settled, the handle of the dummy machine is slowly turned. It can be moderated or stopped altogether for a while, in accordance with the bird's signs of alarm, until finally we are able to turn without caution: then we may begin to work the real instrument and commence our film.

CHAPTER XI.

PHOTOGRAPHING BIRDS IN CAPTIVITY.

THIS last branch of the art is worthy of more and better recognition than it at present receives. It really embraces much useful and valuable work, and can be as productive of beautiful results in its own sphere as can any other branch of the work; but it has fallen into disrepute through its practice by a few unscrupulous photographers, who have tried, with some success, to pass off as studies of wild-life, pictures of specimens in captivity. Apart from all question of principle or sportsmanlike feeling, such misrepresentation is most deplorable, since it causes work done on birds in confinement to be regarded unfavourably, and that done on wild free birds to be received with feelings of doubt and suspicion. It has, in fact, introduced a jarring element into a hobby where none ought to have existed. It is the outcome of Business trying to foster and make profitable Nature Study, and this combination cannot long continue beneficial to both interests—their methods are too dissimilar. A short cut to an object already fully in view

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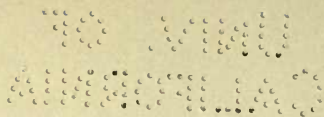
is the essence of modern business, but in Science the trail has to be ferreted out carefully step by step.

The chief merit of the photograph taken direct from wild life is that those who were not present at its taking may later see in it exactly—and in every detail—how Nature planned the thing. Everything thereon represented is just as she ordained (hence the importance of not disturbing the surroundings before taking the picture), and we know we may safely adopt any facts it portrays and read any lessons it suggests so far as the one example is concerned. But once we catch the bird, though only for a short time, and place it among surroundings of our choice, then all deductions as to habits, and even actions, must be made with caution, for they may be affected or entirely induced by the new environment, and it is, therefore, necessary to state the facts.

The great value of these pictures of specimens in confinement lies in the accurate representation of the bird as a creature, of its markings and its form: it is the photographic equivalent of the text-book drawing, and to such it is immeasurably superior. It is not often that the work of the pencil can serve as a model for the camera, but in this case these drawings are the key to what is required in our work. We want a large bold



TAWNY OWL—A STUDY IN CAPTIVITY.



picture of a bird for reference, one giving at a glance the general appearance of the species, and, on a more careful examination, the most minute detail of its plumage.

To do pleasing work on birds in captivity, they must be quite at home and settled down in their new surroundings, and not in any way afraid of our approach with the camera, or they will look scared and unhappy. Above all, they must have congenial and ample quarters in order that they may be kept in the best of health and spirits, or their tails and plumage generally will become draggled. It will be so much the better if the surroundings, when any are suggested in the picture, are typical of those in which the bird naturally lives, for the picture will then be more pleasing; and mention being made that the subject was a captive, will prevent any of our handiwork from being taken as infallibly connected with the bird.

Had these photographs at the time of reproduction always been plainly marked as from captive birds, we should have heard nothing but high praise for such as were technically good; but not only have these been passed off as studies of wild-life, but what is a thousand times worse, pictures of stuffed birds have been made to serve the same purpose! Much craft has been employed

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to make them appear as if taken in the open country, and they are highly mischievous in the interests of both bird-photography and Natural History in general, for the public, deficient in field-craft, accept them as genuine, receiving the lesson, too often wholly inaccurate, which they convey. It is therefore in the interests of our hobby for us all to make known such impositions as come under our notice.

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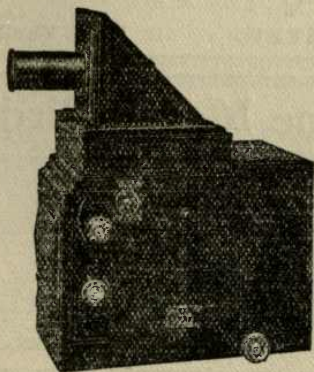
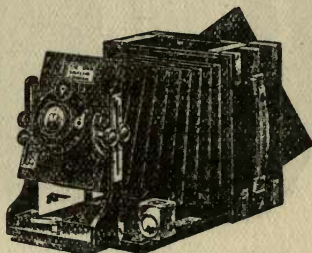
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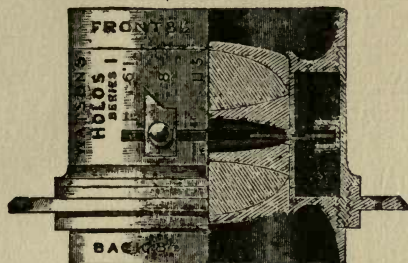
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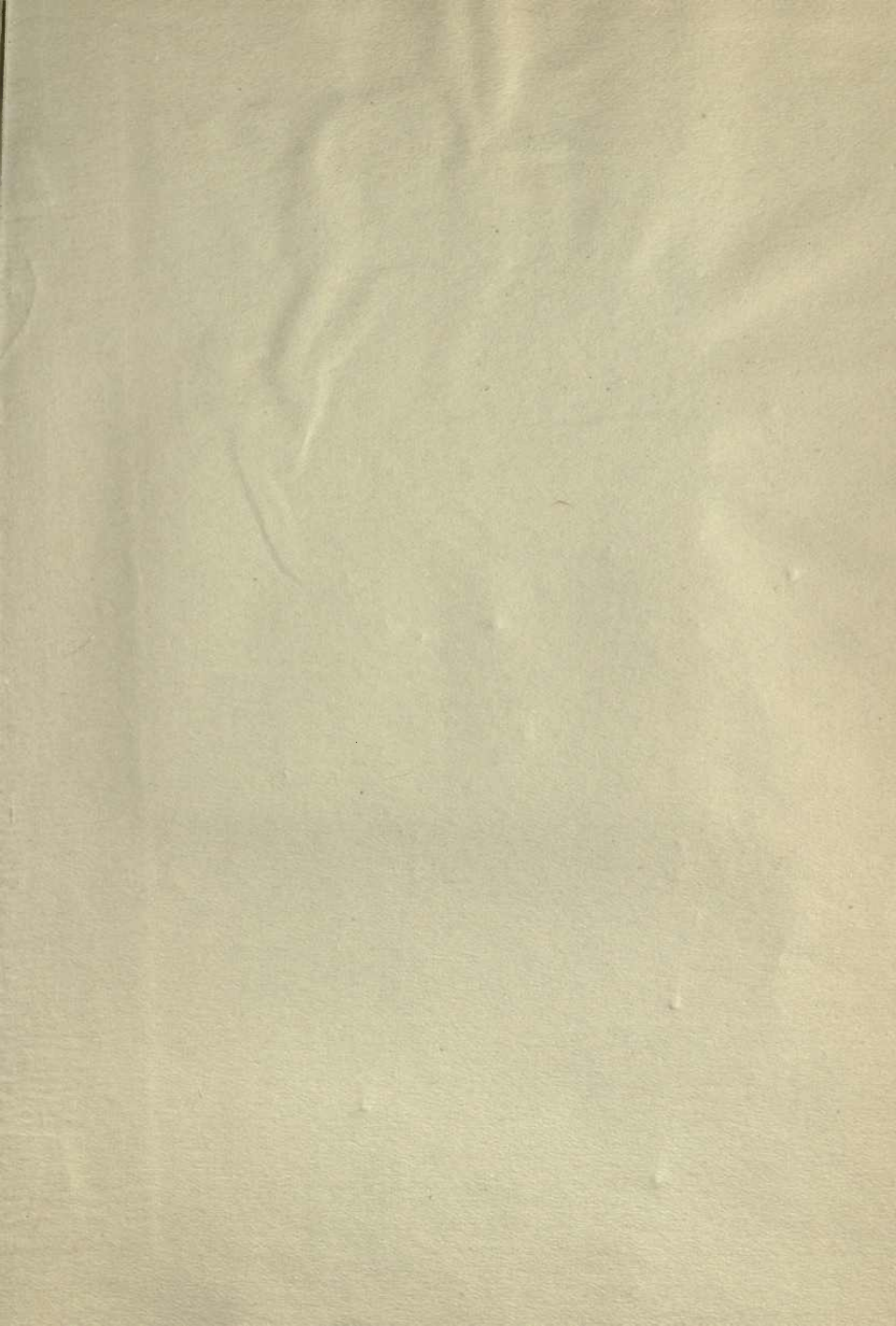
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